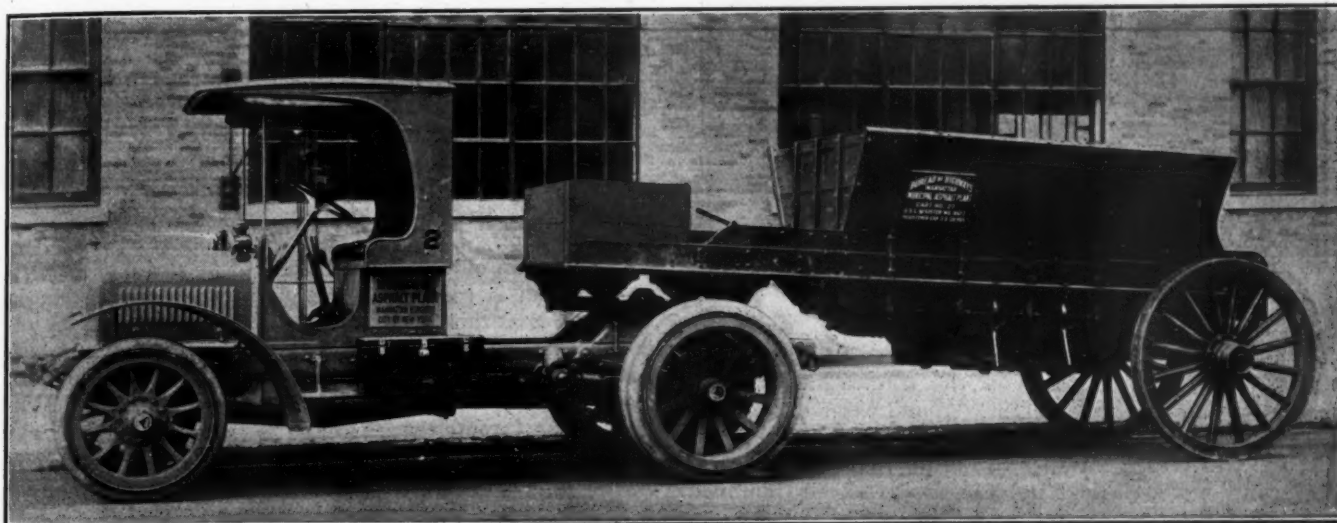


# Municipal Journal

Volume XXXIX

NEW YORK, NOVEMBER 4, 1915

No. 19



TRACTOR HAULING TRAILER FOR ASPHALT PAVEMENT REPAIRS, MANHATTAN.

## ASPHALT REPAIRING IN MANHATTAN

### Method of Using Tractors Economically for Short Haul on Street Repairs—Comparison With Horse Traction—Organization of Street Gangs—Equipment—Schedule of Street Work.

In our issue of March 5, 1914, we described the plans for the municipal asphalt plant of Manhattan Borough, New York, which was then nearing completion. The first actual use of the plant began on May 25 of that year, when one gang was sent into the field. The number of gangs and of work done was gradually increased until twelve gangs were working steadily. The organization of the gangs and the method of carrying on the work at the plant and upon the street were treated of in considerable detail by a paper before the Municipal Engineers of the City of New York, read on October 27 by William Goldsmith, until quite recently superintendent of this plant. A description of the plant work will be given in a later issue. Somewhat abbreviated, the information given in this paper concerning the street work and hauling material from the plant was as follows:

It was the original intention to use horses in hauling from plant to repair gangs, as all contractors had concluded that the use of trucks was impracticable because of the long delays. After the municipal plant was in operation, tests were made with motor vehicles with the idea of seeing whether the delays could not be largely eliminated. The idea of trailers hauled by tractors and left on the street seemed to solve the problem if the trailers could by some means be moved from patch to patch as the work progressed. The idea of using for this the steam roller, which, of course, was on hand on

every job, was tried and worked out very well. The roller had previously been employed to haul the small wagons used for heating smoothing irons, and it was found that it could make from 5 to 6 miles per hour with a loaded trailer having a total weight of 8 tons.

This question being apparently solved, it was decided to adopt this plan, and six Saurer tractors were purchased and fourteen trailers made especially for the work, and these were put into operation on February of this year. The trailers are Watson bottom-dump wagons with a capacity of 120 cubic feet. The interior is lined with sheet steel covered with a heavy asbestos lining to prevent radiation of heat from the load. As asphalt top and binder weigh from 100 to 120 pounds per cubic foot this gives a capacity of from 6 to 7½ tons of asphalt. The trailer itself weighs about 2 tons. About 30 per cent of the total weight is carried on the front axle. Each wagon is fitted with the upper half of a "Shadbolt" fifth wheel and there is a set of front wheels carrying the lower half of such fifth wheel, and the tractors also are so fitted. This style of fifth wheel was adopted on account of the springs used to absorb shocks, a feature which other wheels do not have. The axles have Timken roller bearings. Each trailer has two chutes on each side, through which materials can be dropped directly into wheelbarrows.

One of the tractors is used to haul trailers around the

yard, and the other five for hauling them to the street gangs. One chauffeur reports at 6 a. m., and by 7 o'clock has four trailers filled with asphalt materials and attached to the tractors. While these four are on their way to the street work, other trailers are being loaded. Each trailer, after being loaded, is carried by the plant tractor to a 5-ton differential hoist, where the front end of the trailer is lifted from the tractor, which latter is then free to bring another filled trailer to the same point.



DIFFERENTIAL HOIST FOR RAISING TRAILER.

Each of the five tractors, on returning from the street, couples up to a filled trailer and carries this trailer to the street. Here the front end of the trailer is jacked up so that the tractor can be removed and the front wheels are set under the trailer, which is then lowered into place. Similarly, to return a trailer to the plant from the street, the front end is jacked up, the front wheels removed and the tractor connected up. The trailer can be detached from the tractor by one man in 30 seconds at the plant, where the differential hoists are available; while on the street it takes two men about 3 minutes to jack up the trailer by hand and attach the front wheels. The connecting of the trailer with the tractor at the plant requires from  $1\frac{1}{2}$  to 4 minutes. The placing of asphalt material in the trailer takes from 12 to 15 minutes.

By this system of operation the tractor is kept continually hauling filled or empty trailers, with waits of not more than 2 to 5 minutes at either street or plant. An additional advantage of this system is that the plant efficiency is improved, in that the machinery can run continuously instead of intermittently, because the trailers can be filled at regular intervals even though one or more of the tractors may have been delayed in returning to the plant to remove its trailer, which is held blocked up on a wooden horse, the asphalt covered to keep it warm. In the illustration, the middle trailer is shown so blocked up.

Mr. Goldsmith states that it would take 24 horse-drawn vehicles costing \$7 a day each to supply the twelve street gangs, the cost of the vehicles therefore being \$168 per day. The six tractors he estimates cost \$18 per day each, giving a total of \$108, or a saving of \$60 a day; the \$18 including repairs, interest, depreciation, etc. (The life of the tractor is assumed to be five years and that of the trailers ten years. Some would reduce each of these by 50 per cent.) This indicates a saving of \$15,000 a year on a basis of 250 working days. (We do not understand that Mr. Goldsmith has allowed anything in this for the cost of hauling on the street by roller; but probably the additional fuel required for such hauling would be a very small item, if indeed it is appreciable.) The maximum haul performed by the tractors from the plant to street gangs is  $7\frac{1}{2}$  miles, and the average is  $3\frac{1}{2}$  miles. With the previous method using horses, the wood used for the fires by which the smoothing irons are heated was loaded on top of the asphalt

after the truck had been filled and the asphalt had been covered with a tarpaulin, and this required 4 or 5 minutes in addition to the 12 or 15 required for loading with asphalt material. The wood is now loaded in a box placed on the forward end of the trailer at the same time the asphalt is deposited from the mixer. As the trailer can haul the load to the street at the rate of  $7\frac{1}{2}$  to  $8\frac{1}{2}$  miles per hour, or at least three times as rapidly as horses, there is considerable saving in time between plant and street, which means that the asphalt can be delivered at a higher temperature when tractor-drawn than when horse-drawn. This is to a certain extent offset by the fact that a loaded trailer may have to wait a few minutes for a tractor to carry it to the work, but if the schedule is carefully worked out there would be very little delay except due to occasional accidents.

The general schedule followed requires one tractor to report at 6 a. m. and the other five at 7. Each tractor serves two gangs. Five of the twelve go to work at 7 o'clock, five at 8.30 o'clock, and two at 9. In this way the tractors get a load to the 7 a. m. gangs before 8 a. m., and are back to have a load to the 8.30 a. m. gangs before 9.30 a. m.

In the main office of the Bureau of Highways is a map upon which is recorded the condition of each street in the borough, this information being obtained from reports furnished by district inspectors. The superintendent and the gang supervisors, from the information given on this map, lay out the work for the street foremen. The foreman marks out the patches to be cut out and repaired, and during the first hour the entire gang works at cutting out, the old asphalt being shoveled into a dirt wagon which carries it to a dump of the Street Cleaning Department. During this hour nearly enough places have been cut out for a half a day's work at patching. On the arrival of the asphalt, two men shovel the material out of the trailer, and it is then placed in the patches by two small gangs, each consisting of one raker, one tamper, one smoother, and two wheel-barrow men.

The roller engineer reports one hour later than the rest of the gang, as his services are not required until then. When the day's work is done, the patches are accurately measured and located by the foreman and this, with the time record of his men, is sent to the office. The roller engineer is the last man off the work and he sees that everything is in shape.

As stated in the abstract of Mr. Dunham's report, which follows this, some of the repair work is done by surface burners, and for this work the organization is different. Men who would do the cutting out on the other class of work handle the burners (Iroquois or Buckeye are used), one man to a burner. This man also rakes the material away. From 1 to 5 burners are used at a time; but most of the burner work is extended from curb to curb, where from 3 to 5 burners are used. The Lutz surface heaters, which were used as an experiment, showed that they could easily soften 1,000 square yards in a day of 8 hours, and one block a day was re-surfaced in first class shape.

The equipment for the twelve gangs consists of twelve asphalt steam road rollers, weighing 5 tons, five Good Roads Machinery Company and seven Kelly-Springfield—both types have given complete satisfaction under continuous operation and with the additional work of hauling 8-ton trailers around on the street; six asphalt shovels, two crowbars, one fire wagon, one extra set wheels for trailers, two "Street Closed" signs, four red Deitz lanterns, 24 wooden barricades, one metallic tape, two 10-ton Barrett jacks, one wooden horse for trailer, two wheelbarrows, six pick axes, one asphalt thermometer.



three galvanized iron pails, three asphalt rakes, three asphalt smoothers (50 pounds), three asphalt tampers (34 pounds), seven asphalt cutters, two asphalt top shovels. In addition each gang has one tool wagon and one canvas cover for tools.

## HIGHWAY WORK IN NEW YORK

### Real Test of a Pavement is Service—Experimental Pavements—Curbs, Catchbasins and Other Details—Paving Between Rails.

The following items concerning some of the more important details of the operation of the Bureau of Highways of New York City are found in the report of Henry W. Durham, recently engineer in charge of highways of this borough, for the year 1914. At the close of that year there had been completed, during a three-year period, the repaving of nearly 25 per cent of the total mileage and area of the streets of Manhattan borough, at a cost of over \$7,000,000. This work, much the most extensive of its kind ever undertaken, nearly completed the work of modernizing the street surface to conform to the changed character of traffic, with the exception of streets which were, and for some time to come will be, torn up by subway construction under the jurisdiction of the Public Service Commission.

Mr. Durham discussed at some length the selection of types of pavement for different streets. He refers to the test pavements on Second avenue, described in Municipal Journal of September 12, 1912. The twenty-one different kinds of wearing surface laid there had been observed during their two years of life and considerable valuable information had been obtained. In certain quarters, however, there has been a tendency to attribute too much value to test pavements. The real test of pavement surfaces is actual service throughout the city, since the same set of test pavements might give quite different results if located on different streets under different traffic conditions. The Manhattan bureau of highways has collected sufficient knowledge, based on the behavior over long periods of years of the different classes of pavement which it has laid, to say very definitely what are and what are not suitable types. The experience of the city is confined almost entirely to sheet asphalt, granite block, wood block and asphalt block; there being practically no bituminous macadam or brick in Manhattan borough, although there are a great many miles of these in the other boroughs.

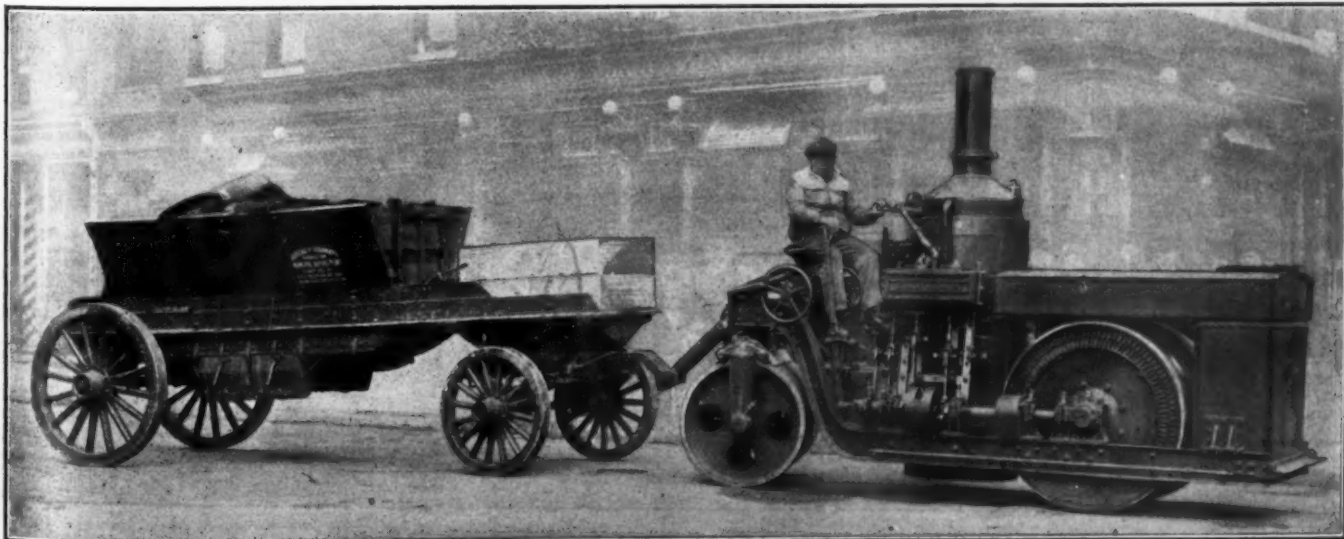
In the Second avenue experimental pavements practically no wear and tear has taken place on the granite block, wood block and sheet asphalt. The worst results have been observed on the European rock asphalt section, a large proportion of which had to be repaired, probably due to originally defective material. In the sandstone block section, quite extensive repairs have been required in both the small cube and the large block portion. The material appears to be far too easily disintegrated for the heavy traffic to which it is subjected. All types of asphalt block have required quite large areas of repair.

No results worth recording can be stated as to the relative values of the variously treated wood block sections. The general appearance of all is very similar, with the exception of the Australian hardwood, which is absolutely unsatisfactory. Not sufficient time has elapsed to permit of any statements of the relative value of the different preservatives used. All classes bled very profusely during the first season and very little during the second.

As stated above, however, Mr. Durham does not attach very great importance to these test pavements as a test of relative general values. "In any particular street selected for such a test, reasons may be brought forward why one or the other type does not secure relatively fair treatment; and it may with truth be urged that classes which failed on some particular street would give better service elsewhere, or that some special section was not laid with the same good quality of work as was accorded a competitor."

Certain changes which are believed to be improvements have been made in the general practice of the bureau. The old 6-foot radius corner curb has been abandoned in favor of a longer radius, generally 12 feet. This allows traffic to pass more easily from one street to another, with a minimum congestion at the corner.

The practice of having a large catch basin inlet at curb corners, thus involving both a maximum height of curb and a running stream of water in wet weather at the point where the greatest pedestrian traffic passes, has been abandoned, and a policy inaugurated of placing storm water inlets on both sides of curb intersections, directly opposite the building line. The old catch basins have been reconstructed to permit these changes, and it is proposed in the future to increase the number of storm water inlets by introducing them not only at corners, but at intermediate points in long blocks, which will permit a reduction in the size of the opening and



ASPHALT ROLLER HAULING TRAILER.

also of the catch basin. The latter must be provided as long as the policy of the street cleaning department allows the brushing of all street sweepings into storm water inlets, but could be eliminated were the London system followed of taking care of street sweepings in separate depositories.

Bluestone, concrete and other materials have all been abandoned for curbs, since only granite has been found to have a life approximating that of the adjacent roadway pavement. (In the other boroughs, where the traffic is not so heavy, better satisfaction has been given by concrete and bluestone.)

Experience in New York, as well as inspection in various large cities of the world, has led Mr. Durham to conclude that the only satisfactory method of paving between the rails of car tracks, particularly those having center slot rails, is by the use of granite blocks with close joints. This policy was inaugurated in New York in 1913, and by 1914 the street railway companies came to realize the desirability from their point of view of a more permanent pavement than they had laid in the past, and the companies are now using modern close-joint granite for all repair and renewal work along the street railways. He believes that on all streets where car tracks exist the area outside the tracks should be paved with either granite or asphalt.

Concerning foundations, some have recommended that these be made stronger by using a richer mixture. His experience indicates, however, that in place of putting additional money into a richer mixture, it should be used to increase the thickness to 8 or 9 inches on the most important streets, and particularly those in which considerable trenching is taking place. Six inches has proved to be ample, however, in the majority of the streets of the city.

In paving a street with material differing from that of the intersecting streets, the policy has been adopted of fixing the limits of the new pavements on the building lines of the intersecting streets; that is, carrying the new pavement out each intersecting street to the building line. The advantage of this is that it removes the intersection between two types of pavement away from the corner, where the joint (which is particularly subject to wear) would receive the most wear. This also

offers the advantage of an exact system of defining the boundaries of each contract.

Among additions to the specifications, melting kettles for heating pavement filler are required to be fitted with thermometers in order that the temperature may be exactly regulated; also the melting point of the paving cement was reduced, to guard against brittleness, which had been a weak point in previous pavement construction.

In connection with sheet asphalt repairs, experiments were made with the burner method. At two points asphalt burners were used for melting the top surface, a thin layer of which was then removed and from one inch to one and a half inches of topping was placed on the surface, thereby removing the wavy profile by filling the depressions which had existed previously. It had been intended to repave these two streets entirely, including a new foundation, but the work done by the burner method has indicated that this reconstruction will not be necessary and that a big saving may be effected by using it on similarly affected streets. During the year 11,647 square yards were laid by this method.

After careful investigation it was shown that the use of motor vehicles instead of horse-drawn wagons in connection with the street repair plant would effect a large saving in transportation. Six Saurer tractors were purchased at a cost of \$23,970, and thirteen trailers to be attached to them. The results obtained are described in the preceding article.

## MUNICIPAL EXHIBIT AT DAYTON

Showing Citizens What Their Public Works Are Like  
—Interesting the School Children—Practical  
Matters Learned by Them.

During the past five years quite a number of cities have given public exhibitions with a view to informing their citizens concerning the public works of their city and how the taxpayers' money is spent, also bringing out in many cases the desirability of increased expenditure along certain lines. These are called in some cases "budget exhibits," in others "municipal exhibits."

One of these of unusual excellence was opened in Day-



WATER WORKS DEPARTMENT, DAYTON MUNICIPAL EXHIBIT.



ton, Ohio, on October 11th, in a large municipal building known as Memorial Hall. While this exhibition was used by the city principally for presenting arguments in favor of a proposed bond issue of \$1,053,000, the greatest interest to most was undoubtedly in the information given concerning the schools, health department, public works, and other municipal activities. Each exhibit of school work was in charge of one of the teachers, and every visitor was urged to ask questions at this and other departments, each of which was in charge of an attendant connected with the work who was therefore able to answer intelligently.

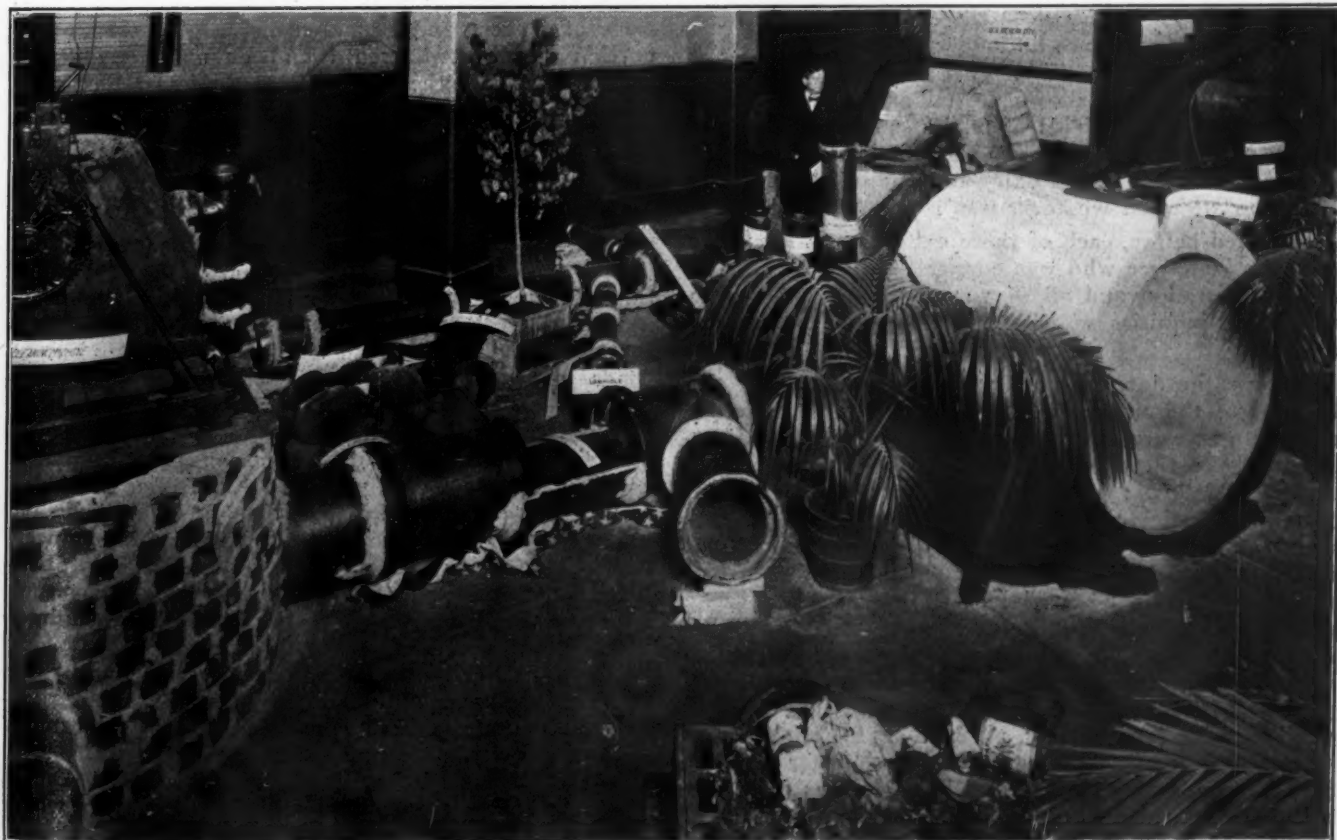
Especially interesting in this connection was the effort made to interest the school children in the exhibit and to ensure that they learned something from it. A list of twenty-five questions was given to each pupil in the high school, answers to which were to be found in the exhibit, and it was part of the school duty of these pupils to visit the exhibit and obtain there the information necessary for answering the questions. To indicate the practical nature of these questions a few examples are given: "Where is the nearest fire alarm box to your home?" "How are sewers cleaned?" "What is a bond? budget? sinking fund?" "How can tuberculosis be reduced in Dayton?" "Where will each dollar of taxes go in 1916 when distributed?" "What is the approximate cost per mile for constructing brick roads in Montgomery County?" "What was the cost per pupil for education in the public schools of Dayton for 1914-1915? Compare this figure with the figure for some other city in the state."

Instead of discouraging children from visiting the exhibit, as has been done in some cities, every inducement was made to encourage them and hundreds could be found there at almost any time out of school hours. Most of them, moreover, were learning something actually useful, and there was no sky-larking or mere idle

wandering through the building. One group of boys was found gathered around a lecturer and taking notes while he explained how to read a water meter. It was believed by the city officials that by interesting the children they would not only be instilling in future citizens an interest in the government of their city, but the children would carry to their homes enthusiasm which would have more or less effect upon their parents and thus redound to the immediate good of the city.

One excellent feature of the exhibit was the avoidance of the confusion which has resulted in many cases from an effort to show too much. In each department some one or two features were selected, upon which were centered most of the attention in the form of diagrams, figures, models, etc.

The public service department was especially prominent. In connection with sewers, there was built in the basement a full-size section of a sewer system, this including manholes, pipe sewers, house connections, inlets of several styles, flush-tanks including flushing appliances, and other details; all built as nearly as possible exactly as would be done in actual construction. In the photographs shown, there will be noticed that both the extreme right and extreme left, appliances used for drawing street cleaning machines through the sewer; and in the center of the illustration, a broken pipe showing a sewer cleaner attached to the hauling rope. Brushes, root cutters, rods for rodding sewers, and other appliances used by the department were shown. A seven-foot section of segment block sewer was used as an entrance to one section of the public works exhibit, in which section were shown several models, one illustrating the methods of constructing brick, wood block and concrete pavements; another, the work done in straightening the Miami river within the city. The topographical work being done by the engineer's department was



SEWER EXHIBIT OF THE CITY ENGINEERING DEPARTMENT.

represented by topographical maps of the city and also by relief maps of sections of the city showing the topography to exaggerated scale. Among the exhibits here was a miniature disposal plant made to a scale of one-quarter-inch to the foot, with automatic syphons, Imhoff tanks, etc., all made as accurately to scale as small size permitted and actually operating with flowing water. Here also were shown materials used by the department, such as "kreolite" wood block shown by the Jennison-Wright Company, and plain block, both untreated and treated, by the Compressed Wood Preserving Company of Cincinnati. Durax blocks were shown, being samples of those recently laid in the city. A section of Buckeye-Berea sandstone curbing, a full-size section of 42-inch concrete sewer, etc., were among the exhibits.

In the water department were shown lengths of water pipe of all sizes used by the city, iron and lead service pipes which had been destroyed by electrolysis and removed; standard lead service pipe and light-weight pipe, showing the citizens what they should not permit the plumbers to use for their houses; a Smith tapping machine; several meters, one of which was enclosed in a glass case and was operating, together with meters disjoined so as to show their construction.

In the street cleaning department were shown samples of the cans required for holding refuse, the brooms used by the machine sweepers (a workman was present refilling a broom, showing how the work was done by the city), samples of hand brooms and other appliances, together with photographs of apparatus too large to bring into the hall. These last included automobiles, which are being introduced extensively and for which the city maintains a municipal garage and repair shop.

One section was devoted to showing the historical development of the modern toilet, from the early earth closet to the latest sanitary self-flushing appliance, with an attendant who pointed out the objectionable features of those styles which are no longer permitted in Dayton and other progressive cities. In the section devoted to dairy inspection were shown objectionable types of milk cans and bottles, methods of testing milk, etc. One of the interesting features here was an excellent model showing a modern model dairy and one of the old style where no attention whatever was paid to cleanliness.

As stated before, each of these exhibits was in charge of a city employee who was connected with the department in question and all of whom seemed anxious to answer all inquiries whether made by men, women or children.

Among the interesting figures connected with the finances of the city were those showing how the city's expenditures were made in accordance with the budget. According to these, each hundred dollars expenditure is divided as follows: For administering city government, \$4 (this including the commission, manager and departments of law and finance). For judicial purposes, \$1.98. For police and fire departments, \$19.53. Lighting streets and the department of weights and measurements were grouped with fire and police under the head "Protecting life and property," the total apportionment for which was \$26.56. For public welfare (health department, hospitals, correction, parks and playgrounds, etc.), \$8.71. For public service (engineering, maintaining and cleaning of streets and sewers, refuse removal and water supply), \$21.47. Conducting elections, \$1.10. Pensions for police and fire department, \$1.10. Interest and redemption of bonds, and judgments, \$35.08. The above does not include payments for education, which amount to about 58 per cent as much as all of the expenses above named.

## DISPOSAL OF GREATER NEW YORK'S SEWAGE.\*

General Plans Proposed by the Metropolitan Sewerage Commission and by the Board of Estimate—  
Digesting Power of Harbor—Local Nuisances.

In 1903 there was created a New York Bay Pollution Commission to study and report upon the problem of protecting the harbor of the city from excessive sewage pollution. This commission was succeeded in 1906 by the Metropolitan Sewerage Commission, which continued to investigate and issue reports from time to time until the spring of 1914, when its final report was submitted. (Several of these reports have been abstracted in Municipal Journal during the past five or six years.)

The Metropolitan Sewerage Commission in its final report makes recommendations, the most prominent features of which may be briefly summarized as follows:

1. Remove from the lower East river a large volume of sewage, equal to about one-quarter of the flow from the entire city, to an artificial island in the ocean about three miles from the shore of Coney Island, from which it will be discharged after passing through sedimentation tanks.

2. Concentrate and treat by sedimentation nearly another quarter of the flow from the entire city at Ward's island, which is located in the upper East river near where it joins the Harlem river, and ultimately to more than double the quantity delivered here.

3. Treat the sewage coming to the Hudson river front of Manhattan and Brooklyn and to that part of the lower East river which is not tributary to the ocean tunnel or to Ward's island in isolated screening plants.

4. The collection and treatment of sewage from the northern slope of the borough of Queens and its treatment at Tallman's island and at possibly two other points in the upper East river, and from the southern slope of Queens and Brooklyn discharging the western portion either at Barren island or ultimately at the ocean island with the sewage from the lower East river, and the eastern portion into Jamaica bay near Joco's marsh.

The Board of Estimate and Apportionment of the city has realized the great responsibility resting upon the city government not only to provide proper drainage facilities, but at the same time to protect the harbor from undue pollution, and it has organized the Bureau of Sewer Plan of the Board of Estimate and Apportionment to co-ordinate the work of the various boroughs so that it will prepare a plan and gradually carry out, as funds will permit, a comprehensive scheme for main drainage and sewage disposal for the entire city.

This bureau will be under the general direction of a committee of the Board of Estimate and Apportionment, consisting of the mayor, president of the Board of Aldermen, and the president of the borough of Brooklyn, and under the administrative control of a board of engineers consisting of the chief engineer of the Board of Estimate and Apportionment, chairman, the consulting engineers to the five borough presidents, and the engineer in charge of sewers of Manhattan, secretary.

The construction work is to be carried out by the borough engineers and paid for by some form of assessment so as not to materially add to the already enormous debt of the city.

The engineers of the Board of Estimate and Apportionment believe that, with a suitable general plan which

\*Abstract of a paper before the Municipal Engineers of the City of New York by Chas. E. Gregory, engineer in charge of sewers, Manhattan, and secretary of Bureau of Sewer Plan of New York City.



will give thorough distribution and diffusion, the expensive ocean island outlet and tunnel proposed by the Metropolitan Sewerage Commission will be unnecessary, and that the Ward's island project is undesirable because it concentrates at a central point rather than distributes the sewage throughout the harbor.

The works now proposed for the larger harbor units will include sedimentation tanks, probably of the two-story type, and improved fine screens. Studies now being made indicate that some of these tanks may be designed for a very short detention period, thus greatly reducing the cost. It has been proposed that where tanks are constructed before the completion of facilities for sludge removal they may discharge small quantities of digested inert sludge from the lower chamber of the tanks continuously at the outfall with the settled effluent. Whatever shoaling, if any, results from such a practice may be temporarily and inexpensively corrected by dredging. Interceptors of moderate dimensions may be utilized to carry sewage to suitable outfall points.

(The first plant for treating sewage in Manhattan has been approved recently by the Bureau of Sewer Plan and authorized by the Board of Estimate and Apportionment. This is to be located at the west end of Dyckman street, where the new ferry service and the present unsanitary conditions make relief imperative. The plant will probably consist of two 14-foot Riensch-Wurl mechanically operated screens, with outlets to deep water off the pier head line. Sixty-five thousand dollars

are available for the work, which will be done by the Bureau of Sewers.)

New York harbor at the present time is receiving the sewage from all the greater city with practically no treatment at all, and without regard to proper distribution and diffusion. As a result, the oxygen content in the East river and the Harlem river has fallen to a very low percentage during the past summer. Notwithstanding this fact, there has been no nuisance in the main channels. Whatever nuisance has occurred is directly traceable to local conditions along the shore front, or in the smaller bays or inlets and to the concentration of large quantities of untreated sewage at the principal sewer outfalls. The fact that the waters in the main channel of the harbor have not become unduly polluted under present conditions is one of the best demonstrations available of the capacity of the harbor to digest enormous quantities of sewage, showing, as it does, that the oxygen may safely be depleted to a very low percentage during the summer months.

While all will admit that it would be desirable and worth even a moderate expenditure of money to maintain what has been spoken of as "pure green water" throughout the harbor, experience has taught that it is not essential to health and that the cost of maintaining it would be far beyond any measurable benefit.

There is, however, a certain degree of cleanness, considerably below perfection, which is undoubtedly desirable for populated districts, on the grounds of common decency and freedom from malodorous conditions.

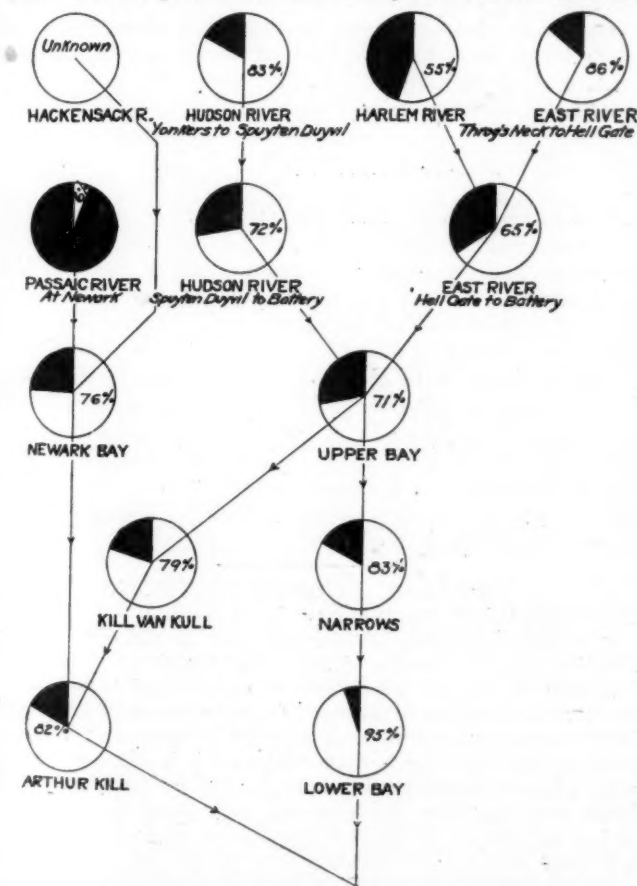
The total amount of oxygen available for the digestion of sewage in New York harbor has been estimated to be sufficient to oxidize the untreated sewage from approximately 7,000,000 people. These figures were based, however, upon a uniform distribution of the sewage throughout the harbor. Some recent estimates of the population of the entire Metropolitan district in both New York and New Jersey tributary to New York harbor would place the present population at something more than 7,000,000.

The fact that the harbor in the main channels is now satisfactorily digesting this vast quantity of sewage, which is discharged without treatment and without proper distribution, makes it evident that the waters are capable of assimilating a far greater quantity than has been estimated.

When all the sewage reaching the harbor shall have been treated by removing the coarser suspended organic solids and properly distributed and diffused, it would seem perfectly safe to assume that the harbor water will be capable of taking care of the effluent from a very much greater population.

The standard of cleanness adopted for the harbor of Greater New York should take into account the local conditions in the various parts of the harbor, such as the use to which the water front is to be put, the volume of clean water which enters that part of the harbor, and the cost of, as well as the space available for, treatment of the sewage. In order that specific requirements may be made for each locality, the harbor may be divided, for convenience, into thirteen subdivisions of harbor units.

The relative cleanness of these various units at the present time may be taken as a guide for determining what conditions may be economically maintained in the future. It is assumed that bathing or the cultivation of shell fish will not be permitted in the inner harbor, but that they may be permitted in some of the outlying harbor units until the growth of the city shall have changed conditions so as to render it no longer reasonably economical to maintain the waters in a suitable



DISSOLVED OXYGEN REMAINING AFTER PARTIAL EXHAUSTION BY SEWAGE.

Rearranged from a diagram by Kenneth Allen, so that the circles are in approximately correct geographical position. The white areas, as well as the figures therein, represent per cent of oxygen saturation. The lines connecting the circles indicate the direction of net movement of the water, although this is complicated by the combination of tides and currents. The pollution by New York's sewage above the Battery, and the re-oxidation below this by absorption from the air are plainly seen by following the direction of the arrows from circle to circle.

condition for such uses. Any standard proposed should not be considered in the nature of a rigid rule or law, but rather a statement of conditions which it is desired to maintain and to be used as a guide for the establishment of treatment works as rapidly as they become necessary.

The most important requirement in a standard of cleanness is the immediate abolition of all local nuisances in every part of the harbor. Other requirements will probably have to be modified from time to time with the growth of the city and the changing character of the water front. In the final determination of such a standard or guiding rules, the following requirements may reasonably be adopted:

Treatment should be established to the extent necessary to keep all parts of the harbor at all times free from visible solid matter of sewage origin, noticeable discoloration, fields of oily sleek, odors due to sewage or trade wastes, material deposits of sewage sludge, and to maintain in each harbor unit at all times, under the most unfavorable conditions of tide, depth, location, season, and temperature, not less than certain specific quantities of dissolved oxygen.

It is believed that the dissolved oxygen in some of the units of the inner harbor may safely be allowed at times to fall somewhat below 20 per cent of saturation. Other harbor units, more closely connected with the sources of clean water, may consistently be maintained at a very much higher standard and tentative percentages may be adopted from time to time for each separate harbor unit.

Such a guide would be useful for indicating the time and location for the construction of additional works. The works required for a long time to come will probably include only fine screening or sedimentation combined with proper distribution and diffusion into the main channels, except in two or three harbor units, where further refinements in the treatment of relatively small quantities of sewage, even in some cases to the extreme of sterilization, may be required for the purpose of temporarily preserving bathing beaches and suitable conditions for the shell fish industry.

Such nuisances as exist in the harbor at the present time, and such as, in the natural order of things, will occur in the next few years, are local and may be abated without great expense. These nuisances are located, in most cases, in the immediate neighborhood of sewer outlets, which in time past have been improperly located at bulkhead lines, between piers or at other points where tidal currents are not effective in sweeping away and rapidly diffusing the sewage.

The existence of piers and other irregularities of shore line along the water front interfere with the tidal flow and inevitably cause some stagnation in the water along the shores. It follows naturally from the uses to which these piers are put that the slips must gradually accumulate quantities of solid matter which does not all come from the sewers but a large proportion of which is subject to putrefaction and, as soon as the oxygen in the water has become sufficiently reduced, gives off offensive odors. Fecal matter and other materials of sewage origin are often visible at existing sewer outlets and constitute nuisances offensive to sight. Practically all nuisances which exist in New York harbor at the present time are due to the above easily understood causes. They may be abated by submerging and extending all sewer outlets at least as far as the pierhead line, or to points where they will be washed by tidal currents of sufficient strength to rapidly carry away and diffuse the effluent throughout the main currents of the harbor, and by dredging between the bulkhead and pierhead line where shoals and deposits occur, especially in the neighborhood of sewer outlets.

Dredging is one of the first remedies that should be applied and, pending the construction of works to prevent or reduce deposits, the removal of sludge by dredging from the slips and other places of deposit will serve to very materially improve the general condition of the harbor, as well as to eliminate local nuisances resulting from sludge deposits. Furthermore, dredging can be made a permanently economical and suitable adjunct to the disposal works, as has been done in harbors of other large cities, where the removal of sludge-producing matter by disposal works has been only partial, as is proposed for New York.

Dredging would also have special application to the removal of accumulations of wash from the streets which is carried directly into the harbor by the storm water sewers. Dredges of special design would be used and the sludge taken to sea in scows.

The main drainage works should be designed to utilize the digestive capacity of the harbor to the greatest extent practicable by effective distribution of the sewage effluent and the gradual erection of works to remove the coarser and ultimately the finer organic solids discharged by the sewers.

#### PASADENA MUNICIPAL LIGHTING PLANT.

During the year ending June 30, 1915, the Pasadena, Cal., municipal lighting plant (which was fully described in Municipal Journal for October 22, 1914) generated 5,866,358 k.w. hours. Of this amount, 1,118,961 k.w.h. were lost in transformers, transmission lines, etc., and 46,817 k.w.h. were used in lighting the plant; the amount sold totaling 4,700,580 k.w.h. The cost of current generated and sold was as follows:

	Production	Distribution	Generation
Cost of all current generated...	\$0.00763	\$0.00451	\$0.00507
Cost of all current sold.....	0.00952	0.00563	0.00633
	Interest	Depreciation	Total
Cost of all current generated..	\$0.00426	\$0.00517	\$0.02664
Cost of all current sold .....	0.00531	0.00646	0.0325

The amount received per k. w. h. for all current generated was \$0.03296 while for current sold it was \$0.04114. The earnings for the year included \$51,729.44 for street lighting and \$141,637.35 for commercial light and power. The actual operating gain was \$50,997.23, from which is deducted an increase of \$13,751 in the interest reserve, leaving the gain \$37,246.23. Oil fuel was used and 134.26 k. w. h. were generated per barrel of oil, compared with 136.62 for the previous year. The load factor of the station is 34.08 per cent, the capacity factor 21.96 per cent, and the revenue for station capacity, \$63.40. The maximum demand was 1965 k. w.

#### OMISSION OF SAND CUSHION.

Editor Municipal Journal, New York, N. Y.:

Dear Sir—Referring to the editorial in the issue of the 28th inst. on "Omission of Sand Cushions."

Should it become necessary to replace old blocks on a mortar cushion the ridged material may be readily removed if the concrete foundation is swabbed freely with a heavy oil before placing the mortar. When this is done, pounding with a heavy hammer will cause the mortar to break off in large patches, thus doing away with expensive hammer and chisel work. This the writer knows from experience in a factory making concrete products where the accumulation of surplus mortar around the machines caused a piling up which had to be removed from time to time with considerable injury to, and requiring sometimes a replacing of, the concrete floor. At the suggestion of the writer four years ago, the floor was swabbed with heavy oil around the machines and when the accumulated mortar is removed each month or two it is done easily and inexpensively with a hammer. Nowadays around that factory all the concrete floors are swabbed with oil when new ones are put in extensions and the floors are readily cleaned when it becomes necessary. Yours truly,

ERNEST McCULLOUGH.



# Municipal Journal

Published Weekly at  
50 Union Square (Fourth Ave. and 17th St.), New York  
By Municipal Journal and Engineer, Inc.  
Telephone, 2805 Stuyvesant, New York  
Western Office, Monadnock Block, Chicago

S. W. HUME, President  
J. T. MORRIS, Treas. and Mgr. A. PRESCOTT FOLWELL, Secretary  
A. PRESCOTT FOLWELL, Editor

Subscription Rates  
United States and possessions, Mexico, Cuba.....\$3.00 per year  
All other countries..... 4.00 per year  
Entered as second-class matter, January 3, 1906, at the Post Office at New York, N. Y., under the Act of Congress of March 3, 1879.

## CHANGE OF ADDRESS

Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper either in the form of special articles or of letters discussing municipal matters, are invited and paid for.

Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

NOVEMBER 4, 1915.

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### Paying Contractors in Cash or Bonds.

Although the practice is not so common as it was, there are still some cities which pay contractors for municipal work (especially paving and sidewalk work) in bonds, city notes, debt certificates and other substitutes for cash. We have several times taken occasion to point to the objectionable features of this. Some of these are: The contractor adds to his bid a greater or less percentage to cover interest during time he is waiting to obtain a good price for the city's paper, his trouble in selling them to advantage, and possible loss due to the impossibility of obtaining par value for them or to his discounting them for cash. Contractors who have not a large capital and need cash to pay their labor weekly cannot take contracts under this system, although they might give very satisfactory work at low prices on small contracts, like sidewalk work. Non-resident contractors would not wish to load themselves up with debt certificates of a city which it might be inconvenient for them to keep in touch with, and might be suspicious of this method of payment if they are not familiar with it, and so competition is restricted, which again means higher prices.

That payment in bonds *does* increase the cost of work, or at least that it did in one case, is proved by the experience of Miami, Fla. That city has for some time been paying contractors for street work in bonds, and one contract was let on that basis a short time ago amounting to

\$70,000. A recent amendment of the city charter provides for payment of cash on monthly estimates, and the contractor for the \$70,000 job asked to have future payments made in cash, agreeing to reduce his prices by 5 per cent if this were done. The city accepted this offer. In addition, these bonds sold at a more favorable price than had the bonds issued under the previous system; and altogether the city officials believe that they will save about 15 per cent on contract work by the change.

It is no excuse for the objectionable method that the individual property owners and not the city pay for it. There are few if any cities which can not arrange to raise the cash for paying the contractor promptly and reimburse themselves by assessing the property. And this plan possesses the added advantage that the poorer property owners, some of whom would find it a great hardship to raise the cash for immediate payment, can be given by the city two, three or five years to make the payment in as many equal installments, paying interest on the unpaid portion meantime. The city would lose nothing by loaning its credit to its own taxpayers, and it would gain for them or for itself, or both, a saving because of lower bidding by contractors.

### Rational Budget Making.

While a comparison of the expenditures of any one city with those of other cities, as suggested last week, furnishes many interesting side lights on the wisdom of the apportionment of expenditures made by the city in question, yet each city must to a large extent be a law unto itself in this matter because of the great variations in local physical conditions, and to a less extent in the needs and characteristics of the citizens. It is also necessary to take into consideration that construction and repair work, especially the former, are generally to some extent performed intermittently, and that consequently each year may see a necessity arise for an excess of expenditure along some one line for new construction or extensive repairs.

In order to allow for the intermittent variations caused by the construction and repair work just referred to, it would seem practicable to reduce the former to an annual interest and depreciation account, and to average up the latter for a series of say four or five years. We would then have, as the annual expense of running a given department of the city, the sum of (1) all the regular maintenance expenditures, (2) the average of repairs for the year in question and the preceding four years, and (3) the interest and sinking fund charges for new construction (such as that of schools, highways, etc.). The total of all these would not give us the budget total, but could be used in making the calculation by which the various payments for a given year would be apportioned. Assuming that each item has been prepared by totaling these several items as just indicated, the problem may be treated in the following manner:

In a certain town we find the percentage apportioned to each of the several items for the previous five years to be as shown in Column 1 of the accompanying table. Comparing this with the average expenditures by cities as given last week (and since these averages include such a large number of cities, they would probably give practically the totals of average expenditures, including both improvements and new construction, as indicated above), we find that payments for education are quite high, those for highways are very low, those for health are quite high, and the others do not depart far from the general average.

This comparison, however, as stated last week, does

## Relative Expenditures; Cities of Over 30,000 Population.

Classification of Expenditures.	All cities.	Over 500,000.	From 300,000 to 500,000.	From 100,000 to 300,000.	From 50,000 to 100,000.	From 30,000 to 50,000.
General Government.....	6.8	7.9	7.1	4.6	5.5	5.1
Public Safety & Protection...	12.9	12.9	14.2	12.3	13.3	12.6
Conservation of Health.....	1.2	1.4	1.2	1.1	1.2	0.9
Sanitation .....	7.6	6.5	8.3	10.0	7.5	7.3
Highways .....	16.5	14.2	16.9	19.5	18.4	20.3
Charities, Hospitals, etc.....	4.2	5.2	6.2	2.3	1.7	2.1
Education .....	20.0	18.0	20.3	21.7	23.6	25.5
Recreation .....	4.0	3.9	3.9	5.6	3.2	2.4
Miscellaneous and General...	1.7	2.3	1.2	0.9	0.9	1.1
Municipal Enterprises.....	0.2	0.3	...	0.1	0.1	0.1
Water Supply.....	10.1	9.9	10.2	10.4	10.6	9.7
Other Public Service.....	3.7	4.7	2.1	2.1	4.3	2.4
Interest on City Debt.....	11.1	12.8	8.4	9.4	9.7	9.4
	100.0	100.0	100.0	100.0	100.0	100.0

Table for Calculating Apportionment.

Item	Previous 5 years	Excellence of service.	Relative apportionment to give desired quality of service.	Increase (col. 3 minus col. 1).	Relative importance of improvement.	Weighted increase.	As calculated.	Reduced to percentage of total budget.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Education .....	56.9	95	59.9	3.0	100	3.0	59.9	50.4
Street lighting.....	5.6	50	11.2	5.6	70	3.9	9.5	8.0
Public safety.....	14.3	80	17.9	3.6	85	3.1	17.4	14.7
Streets .....	6.3	30	21.0	14.7	50	7.3	13.6	11.5
Refuse disposal.....	3.5	75	4.7	1.2	60	0.7	4.2	3.5
Sewerage .....	7.0	90	7.8	0.8	90	0.7	7.7	6.5
Health .....	2.4	100	2.4	0.0	100	0.0	2.4	2.0
Miscellaneous .....	4.0	100	4.0	0.0	00	0.0	4.0	3.4
	100.0	..	128.9	...	...	...	118.7	100.0

not make any allowance for the various local conditions. It is suggested that such allowance be made by actual careful observation and analysis of the results secured by expenditures made during the five years in question, assigning to such results a percentage as compared with the expenditure necessary to secure what would be considered reasonably perfect service, taken as 100 per cent. Such percentages we have entered in Column 2; the town in question having a most excellent school system and health board, its sewer system being quite satisfactory, the police and fire departments giving excellent service. The refuse collection is good, but the disposal of the refuse leaves much to be desired, and this item is given a percentage of 75. The street lighting is poor, and it would probably require double the expenditure to make it satisfactory. The street maintenance was the subject of much criticism, and it was estimated that to keep the highways in good condition would have required the expenditure of at least three times as much money as was available.

The interest in the sinking fund charges do not appear, as they were distributed among the items for which the bonds were issued.

Using these percentages, if they have been wisely chosen we will find in the third column the amounts, expressed as percentages of the total average expenditures of the five years in question, which would be required to give satisfactory service under each of the several items. This column totals up to 128.9 per cent, indicating that to obtain such satisfactory service it would apparently be necessary to increase the budget of the previous year by 28.9 per cent, in addition to the normal increase required by increase in population, in mileage of streets, etc. (It is assumed that all of the departments are operated as efficiently as is practicable. If they are not, this is a matter for investigation and

anticipated improvement in efficiency could be allowed for otherwise.)

So far the assumption has been made that perfection in each of the items for which expenditures are provided is of equal importance, and that if the total of the budget must be reduced, all items would be scaled down proportionately. But probably few would be willing to cut down the apportionment for education to the same extent as would be conceded for the highway apportionment, and the same idea of relative importance would apply to the other items. This relative importance of improvement in the service can be represented by factors. For instance, schools and health could be given a factor of 100 per cent; paving, 50 per cent; lighting, 70 per cent; fire and police department, 85 per cent, etc. These factors (given in column 5) could then be applied to each item in column 4, with results shown in column 6. Thus, the figures for street paving would be reduced from 14.7 to 7.3, giving a modified per cent of 13.6; similarly the street lighting would be decreased from 5.6 to 3.9. Adding the weighted increase to column 1, we obtain column 7. As the total of column 7 adds up to 118.7, each item must be reduced by 15.75 per cent to give the percentage each is of the total expenditure; which percentages are given in column 8.

In this final percentage we see that the apportionment for education has been reduced from the previous percentage of 56.9 to 50.4 per cent; the sewerage item has been reduced from 7.0 per cent to 6.5 per cent, and health and miscellaneous have also been decreased. If sound judgment has been correctly expressed by the coefficients chosen, then it is proper that these items should be thus decreased, for this is necessary in order to provide funds for increasing the excellence of service in the other departments. If such decrease in the item of education or health cannot be tolerated, then the entire budget must be increased above that of the previous year by an amount sufficient to bring the actual sum represented by the 50.4 per cent in column 8 to equal the actual sum represented in 56.9 per cent in column 1, or about 12.9 per cent. (In addition, the entire budget will need to be increased from year to year proportional to the growth in population.)

This method of calculation requires the employment of critical judgment in the selection of the two factors of "excellence of service" and "relative importance." The latter is almost entirely a matter of judgment, and will undoubtedly vary in different communities and at different times. The "excellence of service" percentage can be based on more definite data by comparing each service with standards of excellence; and it is hoped that within the near future this will become increasingly possible. For instance, certain numbers of units of illumination have been advanced as desirable for the different classes of streets in cities of various sizes; the fire departments of the various cities are given percentages of efficiency by the National Board of Fire Underwriters; recently efforts have been made to classify the efficiency of public schools and assign percentages to them. For the present, however, in the other departments it is apparently necessary for a committee of intelligent men well informed on the subjects in question to carefully examine street paving, sewerage system and other public functions and activities, and decide upon the percentages to the best of their judgment.

Although the above method introduces several coefficients depending about judgment, yet it seems certain that the final results so obtained would be much more likely to secure a larger degree of general excellence in the city service than the lack of all method, which is

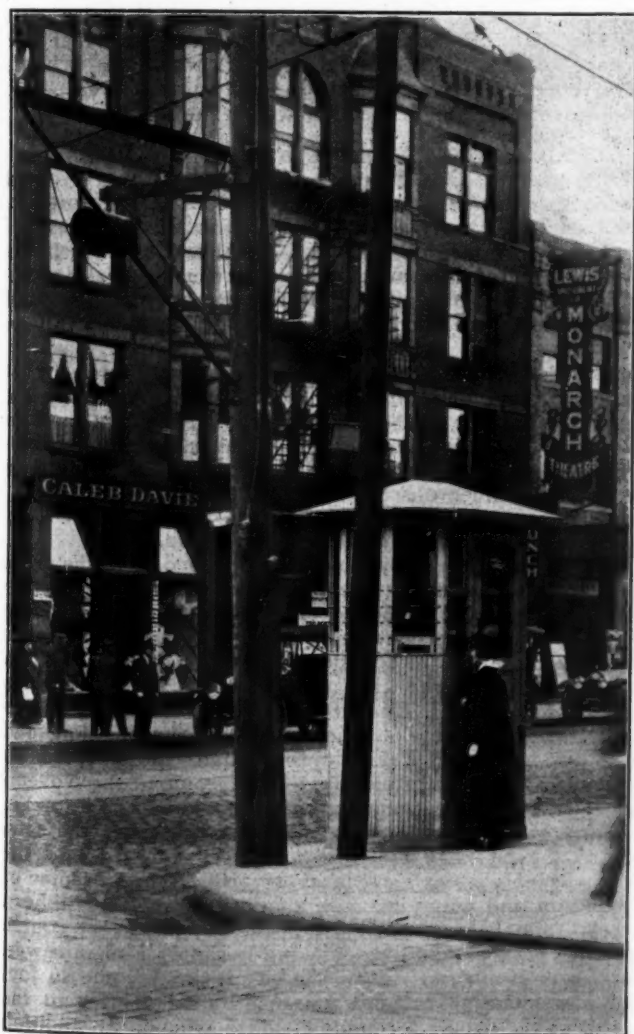


now so common in most cities, where the nearest approach to method is apparently to take the sum of the requests for appropriations made by the several departments, determine how much this exceeds the amount available, and scale down each request proportionately—an invitation to extravagance in requests and a practically total disregard of actual requirements.

### STREET TRAFFIC SIGNALS.

A traffic signal apparatus which was installed in Cleveland, O., in August of last year was described briefly in our issue of January 14. This was an experimental installation of the interlocking high reflector signals of the American Traffic Signal Company which was installed at the intersection of Euclid avenue and East 105th street. Both Euclid avenue and East 105th street carry double street car tracks, their intersection is in the heart of the East End shopping district, and a traffic census shows that the pedestrian traffic is heavier than in any other corner in Cleveland, and the vehicle traffic also is very heavy.

In a letter received in October, 1915, from the director of public safety of Cleveland, Alfred A. Benesch, he states that the signals have been in operation since August 5, 1914, and have given very satisfactory results. The apparatus was installed on approval and has not yet been purchased, as the city is without funds provided for this purpose. The company has set \$1,500 as the purchase price, or has offered to lease it to the city.



TRAFFIC SIGNAL IN CLEVELAND.

Lamp with Hood in Upper Left Hand Corner; Signal Booth on Sidewalk; Traffic Police Giving Information to Pedestrian.

This apparatus consists of electric light signals, a red and a green at each corner pointing toward traffic approaching on that side of the street. The lights are placed about 14 feet above the street level. They are all controlled by an officer in a booth located on, and two or three feet above, the level of the sidewalk, where he is out of danger from teams and can see over the heads of the crowd. One throw of the switch shows a red light facing each way on one street and a green light each way on the other. The lights have reflectors and extension hoods.

In the booth occupied by the traffic officer is an instrument by which he receives fire alarm signals and is thus warned to clear the streets for fire apparatus. By an emergency switch he can throw all the lights red, then go to the street and clear a passage for the apparatus. The booth is also connected by telephone with fire and police headquarters. The officer is conveniently located for pedestrians who wish to obtain information.

A number of cities, including New York, have recently adopted a much simpler system, consisting of a heavy cast iron foot plate in which is set a gas pipe standard which carries on its top two vertical sheet iron plates or vanes, one carrying the word "Stop," the other the word "Go." The standard can be revolved through 90 degrees by turning it in the foot plate, a short handle being fastened to it about three feet above the street. The traffic officer carries this with him to the center of the intersection, using it there instead of raising his hands. This, of course, does not remove him from the danger of being run down by teams, protect him from storms, nor elevate him where he can see over the heads of pedestrians and horses; but the vanes are more easily seen from a distance than the officer's hands, since they are higher above the street; and he is freer to watch the traffic than if he must stand with extended arms facing in one or the other direction.

### NECESSITY FOR STATISTICS.

From Paper before Pan-American Road Congress by H. Eltinge Breed, First Deputy, N. Y. State Highways.

The necessity for uniformity in highway statistics and data cannot be too strongly emphasized. In spite of the fact that much has been written on the subject, it has nevertheless been considered of relatively minor importance not only by the general public, but even by the engineering profession. This may be accounted for by the tremendously rapid development of highways during the past twenty years, which had kept engineers too absorbed in the process and problems of daily construction work to allow them much time for formulation and correlation of a great mass of statistical material. The hour has struck, however, when continued neglect of this important branch of our subject will mean waste of experience, energy and resources.

The necessity for uniformity is obvious. Under the present system many different highway departments are doing similar work without any basis for comparison. The records of one are unintelligible to others. Mistakes made in one department are duplicated by many another. Experiments are repeated, often with unsatisfactory or disastrous results, in a dozen different places. Every department, every engineer, has to learn largely through his own experience, and when this process involves the huge sums now being expended upon highways, it is entirely too costly. Were comparative statistics available, every department would be an experiment station; every experiment station an illumination to the whole field. The conscientious engineer, consulting such statistics upon the inception of any new work could determine, far more accurately than he can today, factors making for success or failure in it.

## The WEEK'S NEWS

Road Financing in Minnesota and Michigan—Diphtheria and Typhoid Ravages—New Sewerage Systems for Lexington, Albany and Allentown—Providence and San Francisco Water Works Improvements—The Kansas Gas Fight—Fires in Pittsburgh and Peabody—New Auto Apparatus—Jitney Litigation—Grade Crossings in South Bend—Tree Planting in Pittsburgh.

### ROADS AND PAVEMENTS

#### \$3,000,000 for Minnesota Roads.

St. Paul, Minn.—Expenditures in Minnesota in 1915 on work for better roads will amount to more than \$3,000,000, thousands of dollars more than the record of 1914, according to George W. Cooley, secretary and state engineer of the highway commission. Every county in the state has participated to some extent in this movement for a betterment of highways. State road aid distributed so far this year amounts to \$750,000 on both state and county roads, for construction and maintenance. Before the end of the year this will have reached \$1,500,000. The remainder of the \$3,000,000 total is being expended by counties and villages.

#### County Road Finances in Michigan.

Lansing, Mich.—Michigan counties have paid to the state \$1,285,712 for road building over and above what they have received back in good road rewards. Auditor-General Fuller has published the good road taxes and the rewards from each county from 1903 to date. Six counties have so far not taken down a cent of rewards on roads: Baraga, Chippewa, Mackinac, Montmorency, Oscoda and Otsego. All the others have had some rewards, although Gladwin county has had but \$502, and Luce county, \$750. The heaviest figures affect Wayne county, which has paid out for state roads \$721,997 more than it has taken back. Wayne has drawn in road rewards, \$175,258. Thirty-four counties have received more reward money than they have paid out in road taxes. Delta county has the lead, with \$54,000 excess. The total taxes levied from 1903 to 1915, inclusive, amount to \$3,855,000, while the rewards paid total \$2,569,283.

#### Street Work in Sacramento.

Sacramento, Cal.—Figures compiled by Permanent Street Improvement Clerk George Welch in Commissioner of Streets M. J. Burke's office, shows that there are only 11.4 miles of unimproved streets in the old city limits of Sacramento. Up to July 1, and including the improvements completed this year, there were 83.2 miles of improved streets in the old city. Of this sum 42.6 miles are asphalt, 40.1 oiled macadam and one-half a mile of stone blocks. There is a total of 94.6 miles of streets in all the old city. The annexed territory has not fared so well because street improvements have been held up until sewers and water mains can be installed. Out of 98.68 miles of streets in the annexed district, only twelve miles are permanently improved. Estimating the cost of a block of improved street at \$3,200, which is the average figure accepted by the city, Sacramento has spent \$4,013,750 for its ninety-five miles of improved streets.

### SEWERAGE AND SANITATION

#### To Begin Patent Medicine War.

New York, N. Y.—The board of health has strengthened the Goldwater Formula Disclosure ordinance, to become effective Jan. 1, which requires that any patent medicine sold in New York must have its formula registered with the health department. The action was taken in anticipation of a fight on the new ordinance that may reach the highest courts. The vital paragraph of the section reads: "The names of all ingredients to which the therapeutic effects claimed are attributed and the names of all other ingredients

except such as are physiologically inactive, shall be registered in the department of health in such manner as the regulations of the board of health may prescribe." Some patent medicine men have decided to fight, while eleven of the largest wholesale drug houses in New York have declared their intention to comply with the new ordinance and favor a Federal law regulating the sale of patented and proprietary articles. "This section is going to be enforced," said Dr. Goldwater. "I believe that there will be a fight, but we will fight back. The patent medicine fakirs have had a long and prosperous career in this country, but their day will soon be over."

#### Diphtheria Closes Schools.

McArthur, O.—On account of an outbreak of diphtheria in McArthur and its vicinity, the public schools, all churches and places of amusement have been closed and no children are allowed on the streets. There are numerous cases, but so far only two deaths.

#### Diphtheria in Memphis Under Control.

Memphis, Tenn.—Following a decision by Dr. A. A. Kincannon, superintendent of schools, and Dr. J. L. Andrews, superintendent of the department of health, that the spread of diphtheria has been checked and that the menace of a serious epidemic was remote, that schools were reopened. The children gradually returned as public confidence in school inspection was restored.

#### Typhoid Spreads.

Shippensburg, Pa.—Spread of the Shippensburg typhoid epidemic to include cases in a big stretch of the northern section of the county and in Newville, and the outbreak of a virulent form of diphtheria in several sections which has already resulted in two fatalities, are causing health authorities in this county much concern. Typhoid has appeared in districts where there has been no trace of the disease in twenty years, according to Dr. Harvey B. Bashore, county medical inspector. He stated further that many of the cases are on isolated farms and that the cause of the contagion has not yet been determined. Nine new cases in two days bring the number of quarantine cases in Shippensburg to about ninety, while about twenty-five more persons are under observation.

#### Plan New Sewerage System.

Lexington, Ky.—The problem of the disposal of the city's sewage has reached a stage imperatively requiring a solution with little further delay. The difficulty presented here is one not found elsewhere in Kentucky, as Lexington is the only large city of the state which is not located upon a large stream. The city commissioners several months ago employed P. H. Norcross, a sanitary engineer, of Atlanta, Ga., to prepare detailed plans for the handling and final disposition of Lexington's sewage, and adopted an ordinance submitting to a vote of the people at the November election the question of a bond issue of \$350,000 for the erection of a sewage disposal plant. In the past, the sewage of the city has practically all been emptied into the Town Branch, a small stream flowing through the center of Lexington and emptying several miles away into Elkhorn Creek. The Town Branch within the city has in the course of years been arched over, making it simply a main sewer, but where it emerges below the city it has become so foul and obnoxious as to be a nuisance and a menace to the health of the people for some distance around. In addition the Town Branch's flow into Elkhorn has so polluted that



stream that the county of Woodford last year returned indictments against the city of Lexington for creating a nuisance, and the county of Franklin has threatened to do the same, as Elkhorn Creek passes through those counties after Town Branch has emptied into it.

Mr. Norcross proposes the construction of a disposal plant, outfalls and appurtenances at a total cost of \$300,000. This system would provide for a purification of about 3,000,000 gallons daily. The outfall sewer is to be planned to provide for the needs of a population of 100,000, estimated for Lexington by the year 1950. The cost of maintaining and operating this plant would be approximately from \$2,500 to \$3,000 annually, assuming that the entire time of a superintendent in charge is devoted to the plant, but this amount can be reduced if the superintendent, who should be a chemist and bacteriologist, could devote part of his time to other departments of the city work. Four locations are suggested for the proposed plant.

#### Scarlet Fever in Massachusetts Towns.

Haverhill, Mass.—No additional cases of scarlet fever have been reported and Agent Lennon of the board of health hopes that there will be no spread of the disease in Ward 4. The health authorities feared an outbreak of the disease because a girl attended school three or four weeks while afflicted with the disease without being discovered.

Wakefield, Mass.—For the second time within two months Wakefield again has an epidemic of scarlet fever, which may result in the closing of several of the grammar school classes. In one day six cases developed in the schools. Two other cases were discovered among infants one in the east and one in the west section of the town. The individual cases are so scattered that the authorities are unable to account for the origin of the epidemic.

#### City Officials Inspect New Disposal Plant.

Albany, N. Y.—Mayor Stevens and other city officials have inspected the sewage disposal works in course of construction on Westerloo Island. The new sewage system is being built by the city on city owned property at a cost of over \$1,000,000. Work is progressing rapidly and will be completed during the latter part of 1916. Operations will be continued during the winter months. City officials saw under construction the sixteen Imhoff tanks which form one of the main features of the disposal plant. In order to insure the operation of the disposal works during time of moderate high water in the Hudson river, the surface of the liquid in the settling tanks will be about 22 feet above mean low water. Workmen have already begun the construction of the foundation for the Westerloo Island pumping station. The new intercepting sewer will conduct the dry-weather flow of the sewers to the grit chambers, from which the sewage will enter the suction main of the pumping station and will pass through the pumps into the main leading to the settling tanks. There are sixteen tanks, each 33 feet wide, 98 feet long and 27 feet deep. From these tanks the sewage will go through a conduit to the sludge drying beds, eight in number. The sludge will be removed from the beds and will be used for filling in low ground on the city property. The works are designed for a capacity of 30,000,000 gallons average daily flow, the average time of flowing through being about three hours. The contract for the sewage disposal works was awarded to the Riverdale Contracting Company of New York, July 2, 1914.

#### Proposed Sewerage System for Allentown.

Allentown, Pa.—Estimates of the cost of the proposed sewerage system and disposal plant have been submitted to council by City Engineer Weirbach. Comparisons had been made of the Kline's Island site and the Koehler farm, the advantage being in favor of the latter. The sewerage system with a disposal plant on Kline's Island would cost \$1,387,000, while the Koehler plant would cost \$1,318,250, a difference of \$69,250. The cost of operation would be about the same in either case. The estimates accompanying the 1908 report made in conjunction with the former firm of Hering and Fuller, consulting engineers, are used as far as possible for the values of the proposed construc-

tions. It was deemed advisable, however, to have the estimates represent as nearly as possible the required present day investment. As the city of Allentown has increased over 25 per cent in population, having now 64,000, and has annexed about two square miles of territory since the date of the first report, allowances were made for extensions to the system and increased investment to conform with the present practice of constructing sewage disposal works. The estimates for the disposal works are based upon two-story settling tanks, sprinkling filters and resettling tanks, etc. While the cost of investment for the new process of sewage treatment by means of "activated sludge," will be less than for the sprinkling filters, previously recommended, no conclusion has been reached as to the advisability of adopting this method of sewage disposal. A modern steam pumping station and equipment for both sites has been provided for in the estimates. The Koehler site will involve pumping about 50 per cent of the sewage against a head of about 70 feet, while the other site would require pumping all of the sewage against a head of about 30 feet. Messrs. Geo. W. Fuller and Geo. A. Johnson of New York were associated as consulting engineers in the preparation of the estimates.

#### Vetoes \$2,000,000 Bond Issue.

Chicago, Ill.—President Thomas Smyth of the sanitary district of Chicago has vetoed the \$2,000,000 bond issue recently authorized by the board of trustees for the furtherance of construction work on the ground that a bond issue without a referendum vote of the taxpayers is questionable, if not illegal. The bond issue has been a subject of controversy for months. Mr. Smyth declares that the revenues of the sanitary district are sufficient for its needs without issuing any more bonds, and that in the next five years the district will have sufficient funds from taxation and the sale of electricity to do all the construction work contemplated. He says that every other state taxing body calls for a referendum before issuing bonds; that every dollar of bonds now outstanding has cost the state an additional dollar in interest, and the district should not be saddled with any further fixed charges; that no emergency now confronts the district, making a sudden expenditure of \$2,000,000 for construction necessary.

### WATER SUPPLY

#### The 3,400 Acre Reservoir for Providence.

Providence, R. I.—The great reservoir to be constructed in Scituate in connection with the development of the new Providence water supply there will have a water surface of 3,400 acres, or 5.3 square miles, according to estimates made by the engineers. Preliminary estimates by the engineers place the capacity of the reservoir at 37,000,000 gallons, or enough to supply the city for a long period without the addition of any new water to the reservoir. The average daily consumption of water in Providence now is about 25,000,000 gallons. The area which the Scituate reservoir will drain and from which it will gather the water for the city's supply is placed by the engineers at 92 square miles, or nearly 60,000 acres. This is almost exactly five times the area of the city of Providence.

#### Begins Work on Hetch-Hetchy.

San Francisco, Cal.—Bids for furnishing 15,000 sacks of Portland cement for the construction of a diversion dam at Hetch-Hetchy are to be obtained by the board of works. The cement will go by rail to Chinese Camp, and by motor truck from there to the Hetch-Hetchy dam site, a distance of fifty-eight miles. The construction of a tunnel to be used in connection with this dam has begun. Through the diversion tunnel, 500 feet long and 20 feet in diameter, the Tuolumne river water will be carried away from the site of the gigantic main dam. Where the foundations of the big dam are to be set the water is now twenty feet deep. Timber and brush are being cleared away from the reservoir area of 80 acres that is to be submerged. City Engineer O'Shaughnessy has called for \$18,350 for further road construction, sawmill operations and other

work at Hetch-Hetchy. He says that the city's sawmill is daily turning out 18,000 board feet of lumber at a cost of \$8 per thousand. Specifications for the construction of sixty-seven miles of railroad from Rasascoe to the dam site are nearly finished, O'Shaughnessy reports. The cost of hauling materials by motor or team from Chinese Camp to the dam site is now about \$24 per ton, he says, and the city will save at least \$15 a ton when the railroad is built. He estimates that 300,000 tons of materials will be carried into the valley, and thus the freight saving will amount to \$4,500,000, while the cost of constructing the railroad he estimates at \$1,700,000. The city engineer is urging the construction as rapidly as possible of the Hetch-Hetchy system, saying that the consumption of water in San Francisco, as shown by Spring Valley's reports, has increased in the last year more than 5,000,000 gallons per day. This indicates an increase in the city's population of at least 75,000 persons. No account is taken in these figures of the large amount of water used at the exposition and derived from sources other than Spring Valley. If this ratio of growth continues, the present water supply resources will be exhausted inside of six years.

#### Water Company to Get Meter Deposits.

Indianapolis, Ind.—The Indianapolis Water Company has won another victory from the public service commission, the commission having issued an order approving a new rule of the company in regard to the placing of meters. Under the new rule approved by the commission, the company will exact a deposit of \$10 in cash or an acceptable bond from each meter customer before the meter will be placed. This relates to meters with an opening of three-quarters of an inch or less. Where the service is provided through a meter with an opening larger than three-quarters of an inch the regulations permit the company to exact a deposit or bond of any size or amount that it may be pleased to demand. Under the former rule of the water company the company reserves the right to substitute meter service for any other service, and to exact a deposit or not to exact it, as it pleased. But the new rule says the company "will" do it, instead of "may" do it. The company has about 42,000 customers and if it follows this plan it will bring a fund of at least \$420,000.

### STREET LIGHTING AND POWER

#### Kansas Gas Fight Is On.

Topeka, Kan.—The hearing before the state public utilities commission on the application of the Kansas Natural Gas Company for an increase in natural gas rates to 37 cents a thousand cubic feet, has begun. That competing distributing companies are diverting much of the Kansas-Oklahoma gas supply to commercial uses causing the fields to play out and forcing the Kansas Natural Gas Company to purchase 50 per cent of its supply at increased rates and with the present rates in effect this gas cannot be bought and resold at a profit, were the arguments of attorneys for receivers of the Kansas Natural at the first session. R. J. Higgins, city attorney of Kansas City, Kan., argued that a city ordinance under which a gas company is operating is, in effect, a contract. Mr. Higgins asserted also that he believed the present rate of 28 cents too high, saying that in his opinion a 25-cent rate should be ordered. He quoted receivers of the Kansas Natural as saying that the present rate brings a revenue of 20 per cent to the company. Headed by the Consumers' Light, Heat & Power Company of Topeka, the distributing companies are demanding that the Kansas Natural be compelled to furnish an adequate supply. On the second day R. M. Snyder of Independence stated that the Kansas Natural Gas Company had lost \$4,288,000 worth of gas through leakage from the gas fields purchased from the Ransdall-O'Neill-Snyder interests. These figures were based on the Independence selling price and were one-third of the gross revenue from the sale of the gas, Snyder testified. When the Ransdall-O'Neill-Snyder interests were taken over, the deal covered leases on 185,000 acres of gas land. For the property, the syndicate received 12 million dollars worth of bonds, an equal amount of stock

and \$900,000 in cash, paid from the earnings on stock. Later, Snyder said, most of this money was placed back in the treasury to keep the business going. From this land the Kansas Natural has taken 160 billion cubic feet of gas. Had the Kansas Natural been able to market this entire output of gas at Independence prices, Snyder stated that \$13,528,632.92 would have been received by the company. Instead, the revenue from the sale of this gas was given by the witness at a little over eight million dollars. Not less than 30 per cent., Snyder testified, should be charged to leakage. According to the recent report of the public utilities commission, the present physical valuation of the leases is \$1,126,350.24. The property of the gas company is listed for taxation at nearly ten million dollars. The present valuation of all Kansas Natural property, according to testimony of the gas company, is something like nine and a half million dollars. Joseph Rembler, a Kansas Natural employee, stated that the engines and compressors are worth 85 per cent of their original value and have had the best of care, but that they would be of no use when the field is exhausted.

#### Electrolysis Survey for Indianapolis.

Indianapolis, Ind.—Preliminary arrangements have been made for an electrolysis survey in the city of Indianapolis by the United States Bureau of Standards. The bureau found, on receiving the request to undertake this work, that there was considerable need of such a survey, as the electrolysis conditions are unfavorable and the property of utility companies is being affected. A representative of the bureau has been sent to Indianapolis to attend to the preliminary work.

#### New Street Lighting Contract.

La Porte, Ind.—Terms have been agreed upon between the city and the La Porte Gas & Electric Co. whereby a new contract is to go into effect the first of next year that will save the city \$15.50 per year on each city street light, a total saving to the city on the number of lights now installed of \$3,162 per year. Twenty-one additional lights are to be installed, making the amount of money actually saved \$1,954.50. The former rate was \$73. New Mazda 400-c.p. nitrogen-filled lamps will be used.

#### Village Gets Street Lighting.

Mt. Morris, Mich.—This village celebrated fittingly the inauguration of the new electric street lighting by George W. Clute, village president. The celebration completed the efforts of the council which has worked hard during the last few years to solve the lighting question in the village. It is estimated that the council members traveled over 300 miles at their own expense, visiting private and municipally owned electric plants in the state before adopting the present system.

#### Council for Municipal Lighting.

Peoria, Ill.—Reductions of 25 to 50 per cent in electric lighting rates to private consumers and a saving to the city alone of \$32,000 a year for arc lighting is possible under a system of municipal ownership, according to a special committee reporting to the city council. The council adopted the report which provides that the mayor and five aldermen shall constitute a special committee to devise ways and means to construct a municipal lighting plant or acquire the plant of the Central Illinois Light Company. It is recommended that the committee first negotiate with the Central Illinois Light Company for the making of a new contract for street lighting which shall save the city \$26,000 to \$32,000 a year, but that rates to private consumers also be taken into consideration. Failing in these negotiations the report recommends that the committee shall devise and report on means of establishing or acquiring a municipal plant. Appointment of the special committee was made nearly one year ago. The members engaged Messrs. Hoppin and Rich, electrical engineers and constructors, who prepared a lengthy and detailed statement on the cost of electric lighting and the feasibility of establishing a municipal plant. A comparison of figures shows that Peoria pays a rate far in excess of other cities for arc lighting. Under contract it cost the city \$60 a year per arc light. The follow-



ing table, presented by the special committee, shows the rates in other cities:

	Population.	Arc light cost.
Decatur, Ill. ....	35,000	\$18.81
Springfield, Ill. ....	52,000	48.00
Danville, Va. ....	20,000	50.66
Lincoln, Neb. ....	45,000	32.89
Grand Haven, Mich. ....	50,000	50.00
Topeka, Kan. ....	50,000	37.00
Hannibal, Mo. ....	20,000	46.00
Holyoke, Mass. ....	60,000	36.50
Logansport, Ind. ....	22,000	30.00
Richmond, Ind. ....	25,000	43.30

Examination of the records of about 100 cities in which municipally owned lighting plants are being operated was made by the committee.

## FIRE AND POLICE

### Captain Killed in Fire Truck Collision.

Cleveland, O.—Richard R. Killoran, captain of hose company No. 6, is dead, following injuries suffered when the flying squadron wagon crashed head-on into an electric package freight car. Five other firemen of the squadron were slightly injured. The hose wagon was wrecked. Director of Public Safety A. A. Benesch and Fire Chief George A. Wallace went immediately to the scene of the accident, both later expressing the belief that no responsibility attached to the firemen or the car crew.

### Children Die in School Fire.

Peabody, Mass.—Twenty-one children, most of them girls, ranging in age from 6 to 17 years, lost their lives in a fire which destroyed St. John's Parochial School. Many other children were injured. The building, which was three stories high, was without fire-escapes. The 600 children in the building had hardly seated themselves for the morning session when the fire was discovered, and although most of them were guided to safety by Sisters of the Order of Notre Dame, who were their teachers, panic seized some as they neared the front door, and in their rush to escape they lost their footing and their bodies blocked the exit. It was in the front vestibule that nearly all the bodies were found. Examination of the remains of the front doors of the school showed that they swung outward. Scores of children were dropped from windows into fire nets made from coats and blankets. The local firemen, unable to control the blaze, summoned aid from Salem, Danvers and Marblehead, but this came too late. Criticisms by citizens of the lack of fire-escapes on the school building were met by statements from state and town officials that every requirement of law had been met. Deputy Chief George C. Neal of the state police said that the loss of life "apparently was not due to any lack of fire precautions, but simply to the unfortunate place in which the fire started, almost under the front steps, and the accident which blocked the front door." He said that the schoolhouse could have been better protected against fire by fireproof doors and ceilings, but he regarded the building as it stood as complying with all laws. The building was a brick structure of 11 rooms, 9 of which were used as classrooms. Within it was finished entirely of wood, and the flames ran entirely through it. The state police stated there was no law requiring the state authorities to order fire-escapes. The enforcement, it was said, lay entirely with the local authorities, and the only duty of the state police was to see that the equipment, if ordered, was safe and adequate.

### Investigating Pittsburgh Factory Fire.

Pittsburgh, Pa.—The customary probes, warnings and accusations are following the Northside paper box factory fire in which thirteen were killed and eight injured. Four men, the owner of the building, and the three officers of the paper box company, are out on bail pending the coroner's inquest. It appears that the authorities put the blame upon the construction and fire equipment of the building rather than on the contents. Investigations are being conducted by nearly all the bureaus of the public

safety department and a number of the departments of the county government, and all evidence is to be placed before Coroner Jamison. Investigation is also being made of the causes of the bursting of great lengths of hose during the fire. All the city's reports on the building made before the fire showed that conditions over which the city had jurisdiction were not such as to permit of any prosecutions. A report made by Fireman James Bawback on July 31, 1914, characterized the safety of the building as "good," adding that there were no skylights, an open elevator shaft, no fire extinguishers and only four fire buckets, with no standpipes or hose. A report by D. W. Price, private detective for Mayor Armstrong, in which the building was declared to be a fire-trap, could not be found. Many reports were prepared by various bureaus to show just why the fire hose burst at the beginning of the blaze. The hose which failed at the critical moment was bought in 1909, it is said, and was guaranteed for three years. It cost only 60 cents a foot. Director Franklin P. Booth, of the department of supplies, pointed out that there is 110,000 feet of hose in service in the city and that in the past two years 40,000 feet had been purchased by the city, less than 20,000 feet having been bought in the three previous years. The council has appointed a committee to investigate, among other subjects, the responsibility of the authorities in allowing a factory containing inflammable material and employing a number of women and girls, to be located over a hazardous hay and feed store. Following a conference between Governor Brumbaugh and Commissioner of Labor and Industry Jackson on the panic attending the fire, the commissioner issued special instructions to all state inspectors and department employees to call attention of owners of buildings and employers to any fire hazards, and solicit the aid of residents of communities in the work of securing improvements.

### New Police Station.

Newport, R. I.—The new police station, shown in the accompanying illustration, has been completed and will probably be occupied some time this month. The signal system is now being installed. The building will house the auto patrol.

## MOTOR VEHICLES

### Orders \$16,000 New Apparatus.

Bellaire, O.—Bellaire will be proud of the new automobile fire trucks, for which the contracts have been let by the board of control. The new equipment will consist of two Seagrave trucks, and one Peerless chemical truck. The triple combination truck will have a pumping capacity of



Courtesy, Newport (R. I.) News.

NEWPORT'S NEW POLICE STATION.

1,000 gallons of water per minute; will carry two 35 gallon chemical tanks, 1,500 feet of 2½-inch hose, and 250 of chemical hose. It will be equipped to develop 90-horse power, will carry eight men and the usual kit. The combination will develop 70-horse power. It will carry hose also, and in addition will be equipped with a twenty 12-foot rapid hoist ladders. The peerless truck will have practically the same equipment, but will have 40-horse power. The Seagrave trucks will not arrive in Bellaire until January, but the Peerless truck is expected here in the next two weeks.

#### **New Hose and Chemical Purchased.**

Sumter, S. C.—The city council has decided to buy a new Seagrave combination chemical and hose wagon to replace the horse-drawn vehicles which were rapidly becoming less efficient. The new auto truck will carry 1,250 feet of hose and a chemical tank of 50 gallons capacity, with 250 feet of hose. It is 21 feet long and is equipped with the latest Sewell cushion tires, self-starter and other improvements.

#### **New Auto Ambulance Accepted.**

Watertown, Mass.—The new police ambulance has been tested and found perfectly satisfactory. The machine can make about 45 miles an hour carrying 10 passengers.

#### **Central Garage for New York.**

New York, N. Y.—In a report to the mayor on the use of city department automobiles, City Chamberlain Bruere has recommended that a central municipal garage service be established. He found that many city officials use city-owned cars to ride to and from their homes, and that there is a disproportionate amount of idle time for cars exclusively assigned to a particular official or department. The report shows that \$76,866 can be saved in 1916 if the service is centralized and placed under the control of a single department, and the cars assigned to different officials on a livery basis. It is recommended that no car be exclusively assigned for a commissioner except at the designation of the mayor. The mayor has approved the recommendations and will take steps to have the budget estimates acted upon accordingly. It is expected that the new plan will be put in operation January 1.

### **RAPID TRANSIT**

#### **Railway Gives Up Jitney Fight.**

Richmond, Va.—Every one of the 40 jitneys brought to Richmond by the Virginia Railway & Power Co. in its fight with the independent jitney owners has been sold at auction. This means, it is said, that the street railway company is out of the jitney business for good, which leaves the field clear for the independent jitneers. The street railway company's jitneys stand in the name of the Motor Transit Corporation, which paid for the automobiles, it is said, with money borrowed from the Virginia Railway & Power Co. Independent jitneys are now running without molestation. When they were first put into operation here, complaint was made by the Virginia Railway & Power Co. that the competition which was forced upon the company was unfair and unjust; that the company was losing money, and that, consequently, the city was losing money, since the city, by law, receives one-tenth of the company's receipts. The company caused to be organized the Motor Transit Corporation, and 40 automobiles were bought and put into operation. An ordinance laying restrictions upon jitney operations was passed

by the council, certain routes being established, indemnity bonds being required, and special license taxes being demanded. The independents fought this ordinance and succeeded in having it temporarily suspended. Then, when it finally went into effect, all the independent owners withdrew their cars from the streets. Citizens immediately held a mass meeting and demanded that the council repeal the ordinance. This the council did at once. Another ordinance has been introduced, but has not been passed. The street car company withdrew its jitneys from the street while the fight upon the ordinance was pending. The company issued a statement at the time to the effect that the jitney business could not be made to pay.

#### **Test Jitney Ordinance.**

Duluth, Minn.—Habeas corpus proceedings to test the validity of the second jitney ordinance which has just become effective have been started in district court, Attorney A. E. McManus having obtained from Judge Fesler an order directing Sheriff John R. Meining to show cause why Michael Mignella, arrested under the new ordinance, should not be released from the county jail. Although the habeas corpus proceedings are brought against the sheriff, the city's legal department is appearing in defense of the ordinance which is being attacked. Attorney McManus contends that the jitney ordinance now in effect is substantially the same one which was declared by the court to be illegal a few weeks ago. He declares that the referendum petition filed against the original ordinance still holds as against the present ordinance, and that it first has to be submitted to the people before it can become effective.

#### **Tennessee Jitney Legislation Constitutional.**

Knoxville, Tenn.—That the act passed by the state legislature early this year providing that jitney bus operators shall make a bond of \$5,000 is constitutional, and that the jitney operators shall comply with the act, was the substance of opinions handed down in the supreme court in two Memphis transferred cases. The lower courts were reversed. One of the cases was that of the Memphis Street Railway Company vs. the Rapid Transit Company et al. The other was that of the city of Memphis et al. vs. the state ex rel. S. B. Ryals. In the Memphis Street Railway Company case, the suit was brought by the street railway company to enjoin the operation of unlicensed jitneys on the streets of Memphis. It was charged that the jitneys swarmed on the streets, ran at high rates of speed, racing by the cars in front of them for patronage, endangered the complainant's property and passengers and that many serious accidents had resulted from their operation. The bill was dismissed by the chancellor on demurrer and appeal. The supreme court held that it was unlawful to operate jitneys in any city of Tennessee, under the act of 1915, until that city had passed an ordinance authorizing their presence and fixing their routes, and until the jitney owners had procured licenses and executed bonds to cover damage to persons or property inflicted by their



Courtesy, Pittsburgh (Pa.) Industrial Development Commission.  
NEW FARMERS' MARKET IN PITTSBURGH.



machines. In Memphis no such ordinance had been passed and none of the jitney men had made the bond required, so that the running by defendants of these conveyances in that city at present was absolutely unlawful, held the supreme court. In the case of the city of Memphis et al. vs. the state ex rel. S. B. Ryals, the circuit court of Shelby county which released Ryals on a habeas corpus writ when he was prohibited from operating a jitney service on the charge he violated the act of 1915 and a city ordinance, was reversed, and the act held to be constitutional. Under the holding of the supreme court, Ryals will have to make the \$5,000 bond required by the act, and comply with the city ordinance in the operation of his jitney.

## MISCELLANEOUS

### Pittsburgh's New Market.

Pittsburgh, Pa.—The experimental farmers' market on the Monongahela River wharf has been completed and is in use. The farmers who ordinarily gather on the wharf have been invited to make the new house a headquarters where buyer and seller can meet. This market consists of an umbrella shelter shed with a raised concrete platform. Wagons will be ranged along both sides and farm products will be transferred across the platform. The shed is 300 feet in length with a roof spread of 45 feet and cost \$12,500. It will accommodate 60 teams and is designed to meet the needs of the farmers who sell in large quantities. The shed has 14 feet of ceiling clearance over the platform. The roof is of asbestos covered metal sheets in tile form. The end walls are of concrete. The building was designed by Stanley L. Rouse of the city bureau of construction. If it is found that this experiment station is popular and useful the city will add to it.

### Tree-Planting Experiment.

Brooklyn, N. Y.—Raymond V. Ingersoll, park commissioner of Brooklyn, has undertaken what is considered a most ambitious experiment in tree planting on city streets. The plan, which is a part of Commissioner Ingersoll's general campaign to dot Brooklyn with trees, contemplates the planting of 600 trees at one time along a three-mile stretch of Bedford avenue, between Eastern Parkway and Taylor street. Commissioner Ingersoll selected Bedford avenue for this experiment not only because this thoroughfare is one of the main highways leading across the borough, but also because it traverses nearly every kind of neighborhood, from congested tenement district to exclusive private residential section. It is Commissioner Ingersoll's hope that this experiment in tree planting will thus be brought to the attention of the realty owners in every kind of neighborhood as an example of how sections may be improved by uniform and systematic tree planting. When he became park commissioner of Brooklyn, he discovered that the borough, which has been fairly liberally planted with trees, was losing its trees at the rate of about 1,500 a year, while only about 1,000 a year were being planted. The plan of

making local assessments for trees could not be adopted since the neighborhoods, which could stand the assessment, would contribute in a voluntary way and the neighborhoods where trees were most grievously needed were such that the local assessment might seem oppressive and inadequate. Commissioner Ingersoll created a trust fund of department money appropriated, obtained through general appropriations and gifts, and used this to reduce the expense of planting trees. With this reduced expense, which amounts to \$8 apiece for trees, he started a general movement to enlist voluntary associations in the work of getting property owners to take advantage of this small charge. This effort has met with considerable success. He has brought about the formation of associations of people living on a particular block with the result that whole blocks have been planted with trees.

### City Hotel for Unemployed.

Fresno, Cal.—The city of Fresno will build a municipal hotel to house the unemployed. This has been decided upon following a request of the Fresno Relief Society. Unemployment is already widely prevalent. In one day 200 men applied for positions, but there were jobs for only 13. The city officials hold it is better to house and feed the unemployed than to hire extra policemen to hunt criminals. A lodging house was run last year, but the one planned for this year is much larger and will be used for a city warehouse if at some time it is no longer needed by the unemployed.

### Study Grade Crossing Elimination in South Bend.

South Bend, Ind.—City Engineer Fred Anderson is to make a study of track elevation in South Bend and will prepare a map and charts to present to the advisory board and Mayor Fred W. Keller. There are 27 crossings to be considered along the New York Central tracks and it is probable that some of these may be eliminated. City Engineer Anderson has figured that about 40,000 people cross these tracks each day. According to Mayor Keller the gross expense of making each street passage and arranging for the intersections would cost between \$25,000 and \$100,000. Of this actual cost the city would pay by law 25 per cent. Street railway companies would pay 10 per cent where their lines used the crossings. The remaining cost would be borne by the railroad company. It has been estimated that the total cost of the whole work would be about \$3,000,000. The city has been collecting a tax for this purpose since 1912, and has accumulated about \$100,000.

### Improving a Rochester Park.

Rochester, N. Y.—The subway to the fine Durand-Eastman park has been completed and opened to the public with appropriate ceremonies. The illustrations show the view through the subway from the park out along the pier built last year and also a view of the splendid beach, fronting the park, on which will be erected modern bathing-houses next year.



Courtesy, Rochester (N. Y.) Evening Times.  
New Subway Leading to Pier.

The Park Beach.

ROCHESTER'S PARK IMPROVEMENTS.

## LEGAL NEWS

### A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

#### Municipal Electric Light Plant—Liability for Injuries.

*Lord v. City of Atlanta.*—A city is liable for injuries resulting from the operation of an electric light plant as a necessary part of a waterworks system furnishing water to its citizens for pay. *Huey v. Atlanta*, 8 Ga. App. 597, 70 S. E. 71; *Adepe v. Thomasville*, 9 Ga. App. 880, 72 S. E. 478.—Court of Appeals of Georgia, 86 S. E. R., 388.

#### Betterment Assessments—Validity.

*Miller et al. v. City of Portland et al.*—A contract for a street improvement, giving the superintendent of streets power to increase or diminish its cost, after the contract has been made, by requiring a greater or less amount of material, as he shall determine, renders an assessment invalid.—Supreme Court of Oregon, 151 P. R., 728.

#### Assessments—Objection—Estoppel.

*Temple et al. v. City of Portland, et al.*—That some of the plaintiffs petitioned for a patented pavement, the improvement to be made in conformity with the charter, does not estop them from attacking the assessment on the ground that the resolution, by solely specifying the patented pavement, violated the character provisions for competition.—Supreme Court of Oregon, 151 P. R., 724.

#### Defects in Streets—Liability.

*Ward v. Salt Lake City.*—Where a municipal corporation, in the paving and guttering of streets, and in constructing sidewalks and crosswalks, adopted and followed a plan prepared by a competent civil engineer, it was not liable for injuries to a pedestrian who stepped into a gutter filled with water from rain, receiving a fall thereby, since whether the municipality has followed a plan drawn by a competent person for the making of public improvements is the test of its liability.—Supreme Court of Utah, 151 P. R., 905.

#### Compensation for Work Done—Contracts.

*Wright v. City of Tacoma.*—The provision in a contract for the laying of pipe lines for a municipality that the contractor should be paid only for the actual work done, regardless of estimates, entitled him to recover for the actual number of acres cleared preparatory to laying the pipe, and not to pay for the total area covered by the pipe line whether clearing was necessary or not.—Supreme Court of Washington, 151 P. R., 837.

#### Defective Sidewalk—Contributory Negligence.

*Brown v. City of St. Johns.*—Under Comp. Laws 1897, Section 3441, providing that any person injured upon any street by reason of failure of a city to keep it in reasonable repair and in a reasonably safe condition for travel shall recover damages, where a sheet of steel stood on edge in front of a hardware store on a public sidewalk in defendant city, and fell on plaintiff, even though the negligence of boys in chasing a rat concurred in causing the injury with defendant's negligence in allowing the steel to remain in such position, plaintiff could recover against the city.—Supreme Court of Michigan, 154 N. W. R., 79.

#### Unambiguous Contract—Operation.

*Lang et al. v. City of Spokane.*—Where the contract for laying a sewer main provided that the whole cost of pumping, bailing, and all the other work necessary to make the job complete, without exception or reservation, should be borne by the contractor, that the excavation should be kept free from water at the contractor's expense, that he should provide ample pumping machinery to accomplish the result, and that no allowance should be made for pumping water, it being made the positive duty of the contractor to remove water from the excavation before any pipe joint was made, the city was not liable thereunder for additional expense occasioned the contractor in removing water from the excavation accumulated there by reason of the leaking of city water mains in the vicinity.—Supreme Court of Washington, 151 P. R., 820.

#### Money Due—Right to Recover.

*Wright v. City of Tacoma.*—In an action by a contractor for the amount due on a contract to construct a pipe line, the fact that the fund provided by defendant city out of which payment was to be made was exhausted did not bar the contractor's right to judgment for the amount due.—Supreme Court of Washington, 151 P. R., 837.

#### Powers of Council—Payments.

*In re Christey.*—Payment by a city council to a city auditor of counsel fees and disbursements incurred by him in an unsuccessful mandamus proceeding to compel his continuance in office, under the Home Rule Act of 1913, authorizing a city to pay and comprise claims equitably payable, though not constituting legal obligations, was not void as an abuse of the taxing power, since a specific statute existed authorizing payment, and a public question was involved.—Supreme Court, Special Term, Erie County, 158 N. Y. S., 39.

#### Benefit Assessments—Judicial Review.

*Appeal to City of North Yakima.*—Where a city council determined that abutting property was benefited by a sewerage improvement, the matter was a legislative question, and not subject to review by the courts, in the absence of fraud or arbitrary action, and neither the rule nor its application was changed by the fact that properties of certain of the owners assessed were connected with an existing sewer; the city council having power to determine that an existing sewer was inadequate, and to provide for public necessities where no improvements exist at all.—Supreme Court of Washington, 151 P. R., 795.

#### Contractor's Bond—Failure to Repair—Damage.

*City of Ottumwa v. McCarthy Improvement Co., et al.*—Where a contractor gave bond to repair paving, but failed to repair, on notice, and the city was making the repairs, when an excessive rainfall caused further damage, which it was necessary to repair in order to make the repairs contemplated by the notice, but no notice of the second repair was required to be given, since the second repairs were necessarily incident to the first, the withdrawal of the issue of notice from the jury in an action on the bond was not error.—Supreme Court of Iowa, 154 N. W. R., 306.

#### Streets—Vacation—Disposition.

*Louden, et al., v. Starr, Mayor, et al.*—Under Code, § 751, providing that cities may establish and vacate streets, and section 883, providing that cities may dispose of their title and interest in any realty, including streets, and vacate and dispose of them on such terms as the council shall direct, a city, through its council, may vacate a public street and grant the land covered by it to use for private purposes, and, where the council has in good faith exercised such power, the courts will not interfere with its action; and the vacation of a street not generally used for public travel and its grant to a railroad in consideration of the railroad's grant of a strip for the extension of a street and its agreement to maintain the crossing and its approaches was not an abuse of, or an arbitrary exercise of, such power.—Supreme Court of Iowa, 154 N. W. R., 331.

#### Opening of Parkway—Petition for Damages.

*In re Philadelphia Parkway between City Hall and Fairmount Park.*—Where, on the petition of an owner of property within the lines of a proposed city parkway, asking for the appointment of viewers to assess damages, it appeared that the parkway was placed on the city plan more than twelve years prior to the presentation of the petition, that it was a general municipal improvement, with one terminus at the city hall and the other in a public park, and was intended for the use of the public, that some properties in the line of the parkway had been taken by condemnation and some acquired by purchase, and that some buildings had been torn down, some work done on part of the parkway, some improvements made and a portion of the parkway opened to public travel, it was error to dismiss the petition; the parkway being one entire improvement to which the city had committed itself without the passage of an ordinance and the statute of limitations not applying.—Supreme Court of Pennsylvania, 95 A. R., 429.



## NEWS OF THE SOCIETIES

### Calendar of Meetings.

**Nov. 4, 5.**—KENTUCKY CONFERENCE OF CHARITIES AND CORRECTION. Annual meeting, Lexington, Ky. Secretary, Charles Strull, Louisville, Ky.

**Nov. 9-12.**—ATLANTIC DEEPER WATERWAYS ASSOCIATION.—Eighth Annual Convention, Savannah, Ga.

**Nov. 10-12.**—CONFERENCE ON PRINCIPLES AND METHODS TO BE APPLIED IN VALUING PUBLIC UTILITIES.—Under auspices of the Utilities Bureau, 1009 Finance Bldg., Philadelphia, Pa.

**Nov. 16-18.**—PENNSYLVANIA INDUSTRIAL AND PUBLIC WELFARE AND ENGINEERING CONGRESS.—Third conference, Harrisburg, Pa.

**Nov. 17-19.**—NATIONAL MUNICIPAL LEAGUE.—Annual Convention, Dayton, O. Secretary, Clinton Rogers Woodruff, 705 North American Bldg., Philadelphia, Pa.

**Nov. 27-Dec. 3.**—NATIONAL COMMERCIAL GAS ASSOCIATION.—Annual Convention, Savannah, Ga.

**Dec. 27-Jan. 8, 1916.**—SECOND PAN-AMERICAN SCIENTIFIC CONGRESS.—Washington, D. C., Department of State, Washington.

**Feb. 15-18, 1916.**—SECOND NATIONAL CONFERENCE ON CONCRETE ROAD BUILDING.—Secretary, J. P. Beck, 208 S. LaSalle St., Chicago, Ill.

**May 8-10, 1916.**—SOUTHWESTERN WATER WORKS ASSOCIATION. Annual convention, Waco, Tex. Secretary, E. L. Fulkerson, Waco, Tex.

### American Society of Mechanical Engineers.

The annual convention of this society will be held in New York City, December 7-10. The tentative program as announced by the society is as follows:

Tuesday Evening, December 7.

Opening session, address by Dr. John A. Brashear, president of the society; followed by a reception.

Wednesday Morning, December 8.

There will be a business meeting, including reports of the council and standing committees, constitutional amendments; announcement of report of Power Test Committee; new business.

Immediately following the business meeting, the society will honor the memory of the late Dr. Frederick W. Taylor, past-president. The proceedings will consist of a report by a special committee appointed by the president to represent the society at the Taylor Memorial meeting held in Philadelphia on October 22 under the auspices of the Society to Promote the Science of Management.

At the professional session, the following papers will be presented by title only: "Gas Producers with By-Product Recovery," Arthur H. Lymn; "The Application of Engineering Methods to the Problems of the Executive, Director and Trustee," Hollis Godfrey, Mem. Am. Soc. M. E.; "Modern Electric Elevator and Elevator Problems," David Lindquist; "Turbines vs. Engines in Units of Small Capacities," J. S. Barstow; "The Connors Creek Plant of the Detroit Edison Company," C. F. Hirshfeld, Jun. Am. Soc. M. E.; "Proportioning Chimneys on a Gas Basis," A. L. Menzin, Assoc. Mem. Am. Soc. M. E.

The foregoing papers, which are to be presented by title, will be distributed

at the meeting in pamphlet form, and written discussion upon them solicited for publication in the Journal. There will be no opportunity for oral discussion of these papers.

Steam Power (papers to be presented by abstract)—"Design of Fire Tube Boilers and Steam Drums," by F. W. Dean, Mem. Am. Soc. M. E.; "Higher Steam Pressures," Robert Cramer, Mem. Am. Soc. M. E.; "A Novel Method of Handling Boilers to Prevent Corrosion and Scale," Allen H. Babcock.

In the afternoon there will be simultaneous sessions as follows: Railroad (papers contributed by the Sub-Committee on Railroads)—"Operation of Parallel and Radial Axles of a Locomotive by a Single Set of Cylinders," Anatole Mallet, Hon. Mem. Am. Soc. M. E.; "Four-Wheel Trucks for Passenger Cars," Roy V. Wright, Mem. Am. Soc. M. E. Other papers to be announced.

Textile (papers contributed by the Sub-Committee on Textiles)—"Heating by Forced Circulation of Hot Water in Textile Mills," Albert G. Duncan, Mem. Am. Soc. M. E.

Machine Shop (papers contributed by the Sub-Committee on Machine Shop Practice)—"Electric Operation and Automatic Electric Control for Machine Tools," L. C. Brooks, Jun. Am. Soc. M. E.; report on "Code for Abrasive Wheels." Other papers to be announced.

A departure will be made from the usual Wednesday evening lecture, by holding a Smoker in the rooms of the society, to which all members are invited. This will be a get-together, get-acquainted meeting, in charge of the New York local committee, to which every member is invited for a social evening and a good time.

Thursday Morning, December 9.

Simultaneous sessions will be held on the following:

Power Plant—"The Heat Insulating Properties of Commercial Steam Pipe Covering," L. B. McMillan, Jun. Am. Soc. M. E.; "Performance and Design of High Vacuum Surface Condensers," Geo. H. Gibson, Mem. Am. Soc. M. E., and Paul A. Bancel, Jun. Am. Soc. M. E.; "Circulation in Horizontal Water Tube Boilers," Paul A. Bancel, Jun. Am. Soc. M. E.; "Unique Hydraulic Power Plant at the Henry Ford Farms," Mark A. Replogle, Mem. Am. Soc. M. E.

Miscellaneous—"The Flow of Air Through Thin-Plate Orifices," Ernest O. Hickstein, Jun. Am. Soc. M. E. This paper is the Junior Prize paper for 1915, and bears the further distinction of being the first paper to receive a prize from the American Society of Mechanical Engineers. A fund for Junior and Student prizes was recently established by a member of the society. "Elasticity and Strength of Stoneware and Porcelain," James E. Boyd (contribut-

ed by the Research Committee); "Foundations," Charles T. Main, Mem. Am. Soc. M. E. (contributed by the Sub-Committee on Industrial Building); "Oil Engine Vaporizer Proportions," Louis Illmer, Mem. Am. Soc. M. E.

Thursday afternoon is left free for excursions. Instead of providing for a large number of excursions, as in previous years, the local committee has arranged for a few of exceptional interest which it is expected large groups of members and guests will attend. Thursday evening the annual reunion, dinner and dance at the Hotel Astor will be held.

Friday Morning, December 10.

Papers on "Industrial Safety" are in preparation, of which definite announcement will be made later, on the following subjects: Safety Standards in Industrial Establishments; Modern Movement for Safety from Standpoint of Manufacturer; Methods of Reducing Accidents Through Co-operative Movements with Workmen; Compulsory Compensation for Accidents by Law. This session is under the direction of the Sub-Committee of Protection to Industrial Workers.

### New England Waterworks Association.

The November meeting of the New England Waterworks Association will be held at Boston, Mass., November 10. The executive association will meet at Tremont Temple at eleven o'clock in the morning. After lunch, which will be served at the Hotel Brunswick, the following papers will be presented: "Experience with Wood Pipe in New Hampshire," by Arthur W. Dudley, consulting engineer, Manchester, N. H.; "The Wakefield Water Sterilization Plant," by Edward C. Sherman, consulting engineer, Boston, Mass.; "Water Supply Sanitation in the Nineteenth Century and in the Twentieth," by William T. Sedgwick, Ph.D., Sc.D., professor of biology and public health, Massachusetts Institute of Technology, Boston, Mass.; "Grouting or Cushioning Standpipe Bases," by Charles W. Sherman, of Metcalf & Eddy, consulting engineers, Boston.

### Southern Appalachian Good Roads Association.

Five governors, Goldsboro of Maryland, Stuart of Virginia, Rye of Tennessee, McCreary of Kentucky, and Hatfield of West Virginia, attended the seventh convention of the Southern Appalachian Good Roads Association held at Bluefield, W. Va., October 14-16. Delegates were present from nine states represented in the association—Maryland, Virginia, North Carolina, South Carolina, Georgia, Alabama, Tennessee, Kentucky and West Virginia.

The association indorsed a project to build a highway from Maine to Mexico, through the Appalachian Mountains, to be the scenic road of the east. The following officers were elected: Joseph Hyde Pratt, of Chapel Hill, N. C., president and treasurer; Henry Roberts, of Bristol, Va.-Tenn., vice-president-at-

large. State vice-presidents elected include John A. Smith, of Georgia; J. N. Fisher, Tennessee; S. H. Wells, North Carolina; Governor H. C. Stuart, Virginia; James Maret, Kentucky; J. M. Jenks, South Carolina, and John Craft, Alabama.

#### Northwestern Good Roads Congress.

At the final session of the Northwestern Road Congress, held at Cedar Rapids, Ia., October 4-6, the following officers were elected: President, John Hazlewood, president Wisconsin highway commission; vice-presidents, A. D. Gash, president Illinois highway commission; J. H. Mullin, engineer Minnesota highway commission; F. W. Bufum, chief road commissioner, Missouri; secretary-treasurer, Joe L. Long, Moline, Ill., editor "Roadmaker"; directors: S. A. Bradt, Illinois; T. H. MacDonald, Iowa; A. A. Hirst, Wisconsin; J. C. Vandorn, Minnesota; J. L. Brown, North Dakota; W. R. Phillips, South Dakota; J. P. Clarkson, Missouri; H. N. Johnson, Michigan; W. B. Neuman, Indiana.

#### Massachusetts State Firemen's Association.

The thirty-fourth annual convention of the society was held at Haverhill September 29 and 30 and October 1. Addresses of welcome were delivered by Mayor A. L. Bartlett and Chief J. B. Gordon and responded to by the officers of the association. A nominating committee was then named. President Hall then reported on the convention of the International Association of Fire Engineers. Papers the first day included: "The Value of School Drills," Lieutenant William Mahoney, Boston; Capt. F. McKissock, Lowell, reported for the pamphlet committee and delivered an address on the "Synopsis of Bills in the Legislature During the Last Session Affecting Firemen." T. E. P. Wilson, of Lynn, spoke on "The History of the Attempt to Abolish the Annual Firemen's \$15,000 Relief Fund Appropriation in the Massachusetts Legislature."

The first address of Thursday's sessions was made by W. Scott Peters, of Haverhill, who spoke on "Evolution in the Fire Service." He spoke particularly of Haverhill, and began with the early bucket brigades formed soon after the town was settled with the establishment of a fire club, and continued through to the present, tracing the various steps and improvements made in apparatus, efficiency and the fire system.

Mr. Peters was followed by Joseph J. Reilly, of Boston, chief examiner of the Civil Service Commission, who delivered an address on "Results of a Year's Experience in the Use of the Manual in Civil Service Examination for Firemen."

The morning session was closed with addresses by F. W. Raine and M. C. Hutchins, of Boston, who spoke jointly on the question of "Results of United Effort in the Suppression of Forest Fires and Methods Used," and they

showed how despite the exceeding dryness of the early spring, co-operation between state, town and city officials had reduced the hazard, saved thousands of dollars' worth of property and had proven that concerted, efficient and united effort could save many of the disastrous land fires which have annually swept the state and caused great privation and property losses.

The afternoon was devoted to three addresses, one by Alderman Roswell L. Wood, head of the department of public highways; a paper by Leon R. Eyges, of Boston, on "The Possibilities of Applying the Eight Hour Law to the Fire Service," and an address on "Self Efficiency" by Rev. D. W. Matthews, of Lowell.

The following officers were elected: President, John B. Currier, district chief, Haverhill; secretary, D. Arthur Burt, of Taunton; treasurer, Supt. H. R. Williamson, of Worcester; first vice-president, Frank W. Reed, of Hingham; honorary vice-presidents, John F. Manning, of Milton, Chief Patrick J. Hurley, of Holyoke, Chief Edward E. Chase, of Lynn, Capt. George N. Whiting, of Haverhill, ex-Chief John Sullivan, of Plymouth, Capt. W. C. Lord, of Peabody, and George A. Carrick, of Athol.

The board of directors is: For three years, Francis T. Ennis, of Northampton, George N. Wilson, of Lynn, and J. S. Drinkwater, of Framingham. Former Chief E. S. Hosmer, of Lowell, was made commissioner of the firemen's \$15,000 relief fund for two years; President Currier was named as delegate of the association to the convention of the International Association of Fire Engineers and Chief F. O. Whitmarsh, of Braintree, was made sergeant-at-arms.

#### Firemen's Association of Pennsylvania.

The thirty-sixth annual convention of the Firemen's Association of Pennsylvania was held at Philadelphia, October 5-8. Mayor Blankenburg welcomed the 2,000 delegates Tuesday morning. Business sessions, reports of committees and discussion filled most of the time.

Chief Henry F. Ferber, of Scranton, in an address urged a fire marshal for every county of the state as a means of preventing forest fires which annually destroy millions of dollars of timberland.

"We should have as many fire marshals as we have coroners," Chief Ferber said. "The forests are one of the state's most valuable natural assets. Our water supply, our agriculture, our great coal fields are directly dependent upon our forests."

"Fires yearly destroy thousands of acres of timber in Pennsylvania. It is not a question of stopping them after they are started, but a question of preventing them altogether."

"Just as a coroner picks a jury and holds an inquest over the death of a man, when the death is not natural, we should have fire marshals to hold investigations as to the causes for each

forest fire. When a man is convicted of arson, or even gross carelessness, he should be sent to jail with a heavy sentence."

"With a good patrol in every one of our sixty-seven counties and quick justice, we would soon cut down our annual loss from fires. The marshals, of course, should have jurisdiction over all fires. Where necessary they should be provided with deputies."

The plan would necessitate the establishment of a state fire bureau, organized on a thorough working basis, and would mean the expenditure of money. But the results would net to the state more than double the necessary expenditure."

Scranton was chosen for the 1916 convention city and the following officers elected: Eugene C. Bournwell, Radnor, president; vice-presidents, Harvey C. Carney, Norristown; H. O. Holstein, Harrisburg; Daniel H. Harris, Catasauqua, and Peter J. Roser, Scranton; corresponding-recording secretary and treasurer, A. E. Reichenbach, Allentown; financial secretary, I. E. Hahne, Philadelphia; chaplain, the Rev. Samuel H. Stein, York.

#### Alabama Good Roads Convention.

The nineteenth annual session of this convention, which was held at Birmingham, Ala., October 12-13, was well attended. The convention was opened by John W. O'Neill, president of the Jefferson County Good Roads Association, after which there were several addresses of welcome. After the secretary's report, reports of delegates and appointment of committees, A. G. Batchelder, of the American Automobile Association, spoke on "How the Motor Vehicle Has Earned Its Place." Discussion on the use of convicts on public roads followed.

The following papers were presented at the Tuesday afternoon and evening sessions: "Progress of Good Roads Everywhere," Job Going, ex-president board of revenue of Jefferson county; "Work of Highway Commission," R. E. Spraggins, president of the commission; "The Duty of Federal Government to Postal Roads," Senator John H. Bankhead, followed by Congressmen F. I. Blackmon, of the Fourth District, and E. B. Almon, of the Eighth District; "Trees on Public Highways," F. A. Gullledge; "Brick Roads" (with views), John W. Sibley, secretary of the Southern Paving Brick Manufacturers' Association; "Jefferson County Roads" (with views), George H. Clark, county road engineer; "Cement Roads" (with views), L. A. Young, representative of the American Association of Portland Cement Manufacturers; "Views of Culverts for Road Drainage," Howard Seay, representative of the American Rolling Mills Company, Millstown, O.; "Views of Bitulithic Roads," Z. T. Dunlap, of Nashville, Tenn.; "Views and Description of Asphalt Pavements for Cities and Counties," T. H. Reed.

Short talks on road building was a feature of the Wednesday morning ses-



sion. The following addresses were also given:

"Importance of Competent Men in Building Public Roads," W. T. Brown, Ragland, Ala.; "National Highways," addresses by representatives of the Jackson and the Dixie Highway Associations and R. W. Massey, president of the Forrest Highway Association; "The Duty of a State in Building Roads," ex-Governor Emmett O'Neal; "Good Roads and Immigration," G. B. Harper, assistant immigration commissioner Illinois Central Railroad, Birmingham, Ala.

The following officers were re-elected: John Craft, Mobile, president; John D. O'Neill, Birmingham, first vice-president; J. E. Pierce, Huntsville, second vice-president; Senator John H. Bankhead, third, vice-president; Senator Oscar Underwood, fourth vice-president, and J. Asa Rountree, secretary.

Other officers are: District vice-presidents—First, J. D. Bloch, Mobile; Second, E. M. Loveless, Brewton; Third, G. P. Butler, Opelika; Fourth, E. B. Deason, Clanton; Fifth, C. E. Thomas, Prattville; Sixth, W. W. Ogden, Sulligent; Seventh, Gardner Greene, Pell City; Eighth, William E. Skeggs, Decatur; Ninth, L. H. Pennington, Birmingham; Tenth, W. C. Davis, Jasper.

Executive Committee, State-at-Large—Hugh McGreever, Birmingham; Governor Charles Henderson, Montgomery; Lieutenant-Governor Thomas E. Kilby, Anniston; J. F. Kelton, Oneonta; J. M. Friedman, Mobile; Frank S. White, Birmingham; H. K. Milner, Birmingham; J. W. Shepherd, Jasper; R. P. Hobson, Greensboro; Clarendon Davis, Huntsville; W. L. Waters, Alexander City.

Executive Committee, by Districts—First, J. L. Keyser, Burnt Corn; W. H. Holcombe, Mobile; Second, P. J. Cooney, Foley; Horace Hood, Montgomery; Third, G. N. Mitcham, Auburn; D. G. Turnipseed, Union Springs; Fourth, J. B. Ellis, Selma; F. A. Gull-edge, Verbena; Fifth, J. W. Overton, Wedowee; J. A. Wilkerson, Autaugaaville; Sixth, W. D. Seed, Tuscaloosa; W. F. Fitts, Tuscaloosa; Seventh, L. L. Herzberg, Gadsden; W. T. Brown, Ragland; Eighth, G. A. Nelson, New Decatur; R. E. Pettus, Huntsville; Ninth, Daniel Greene, Birmingham; Joe Going, Birmingham; Tenth, W. C. Sparksman, Carrollton; E. P. Goodwin, Fayette.

#### Kansas Electric Light, Gas, Water and Street Railway Association.

The eighteenth annual convention of the Kansas Public Service Association, as it is now called, was held at Topeka, October 21-23. Charles S. Elliott, president of the Commercial Club, gave the address of welcome, to which T. F. Doran responded.

Following the appointment of committees by President H. W. Magruder and the report of the executive committee, two papers were read. L. O. Ripley, of Wichita, vice-president and

general manager of the Kansas Gas & Electric, spoke to the delegates on the subject, "Is Red Tape Good Business Insulation?" and Rudolph Schlatter, of the Busch, Sulzer Bros. Diesel Engine Company, told about the Diesel engine.

(Continued on page 710.)

## PERSONALS

Field, Cornelius J., an electrical and mechanical engineer and formerly chief engineer and general manager of the Edison Company of Brooklyn, died October 20, at his home, 825 Prospect place, Brooklyn, in his fifty-fourth year. He was born in Chicago and was graduated from Stevens Institute in 1886 and entered the employ of the Edison company as a draughtsman. In 1889 he was appointed chief engineer of the Edison United Manufacturing Company, and a year later became general manager of the Brooklyn Edison Company and retained this position until 1891.

Mr. Field then went into construction work and built electric railroads in Buffalo, Newark, Worcester, Mass.; Bridgeport, Conn.; Philadelphia, and a number of other cities, constructing in all more than 500 miles of line. In 1895 he became consulting expert to a number of banking corporations and ten years later went to the West Indies and Europe and built several electric lines and a number of sugar plants. In 1909 he joined Thomas A. Edison, who had then perfected his storage battery for traction use, who turned over to him the development of the bus end of the business.

Duvant, Richard J., mayor of Savannah, Ga., died suddenly October 9.

Wallis, George W., chief of the fire department of Saginaw, Mich., died from heart trouble and over-exertion, while directing his men at a fire.

Pabst, Frederick, chief of the Saybrook volunteer fire department, died October 22.

Montgomery, Louis, will succeed F. R. Hayward as police chief of San Jose, Cal.

Taylor, Alexander J., has resigned as the chief engineer of the street and sewer department of Wilmington, Del.

Milbank, J. T., has been appointed a member of the Board of Public Works of Chillicothe, Mo.

Dent, W. D., has been appointed head of the Winston-Salem, N. C., department of public works.

Horsch, Anthony, has been appointed chief of police of Batavia, N. Y.

Geller, C. W., formerly secretary of the Eugene, Ore., water board, has also been appointed general superintendent.

Fuller, Myron L., specialist on groundwater supplies, has returned from China, where he has been engaged in exploration for nearly two years, and will resume his consulting practice on groundwaters, dam foundations, etc. Mr. Fuller is managing geologist of the Bureau of Associated Geological Engineers, 131 State street, Boston, Mass.

Moulton, H. G., New York City, has been appointed by the Public Service Commission for the First District as an expert in a consulting and inspecting capacity on underpinning work on the subway construction throughout the city. Mr. Moulton has had very extensive experience in connection with mining and railroad timber construction. He will work under Alfred Craven, chief engineer of the commission.

McElhany, A. R., has resigned as mayor of Fort Mill, S. C.

Van Liew, Gilbert M., has been elected chief of police of Mobile, Ala., by the city commissioners.

Sargent, E. H., has been appointed assistant engineer of water power, storage and drainage, by the New York State Conservation Commission.

Hinman, Fred R., has been named as chief of police of Galesburg, Ill., succeeding the late T. L. Matthews.

Unison, John L., has been appointed street commissioner of Terre Haute, Ind., succeeding Dan O'Mara.

French, D. H., has been elected mayor of La Grange, Ky., to fill out the unexpired term of L. H. Snyder.

Koonce, Charles F., has been appointed chief of police of Raleigh, N. C., succeeding Charles M. Walters.

Rosencrans, John C., is now chief of the Westfield, N. J., police department.

Lominac, Charles N., chief of detectives of Asheville, N. C., has resigned.

Robinson, Caleb A., has been elected by the board of aldermen to be chief of police of Concord, N. C.

Martin, Fred., for more than eighteen years a member of the Butte, Mont., fire department, is now chief.

McAneny, George, president of the board of aldermen of New York City, has resigned to take effect January 1. He will enter newspaper work.

McDonough, Charles J., formerly barge canal resident engineer in Lockport, and later engineer in charge of canal terminals at Buffalo, has been transferred to Buffalo and placed in charge of the Buffalo division of the highway department including all the counties of Western New York. He has had a similar position at Syracuse. William Acheson, who has been the road engineer at Buffalo for years, succeeds McDonough at Syracuse.

The following officials have been elected:

Mobile, Ala.—P. J. Lyons, mayor.  
San Francisco, Cal.—James Rolph, Jr., mayor.

Elkins, W. Va.—Dr. A. M. Fredlock, mayor; Johnson, Talbott, Wees, Coberly and Daniels, councilmen.

Milton, Fla.—John Collins, mayor; W. J. Williams, Jr., clerk and treasurer; J. H. Harvell, Dr. Brunner, David, Smith and J. W. C. Mann, aldermen.

Waterbury, Conn.—Martin Scully, mayor; William Moher, city clerk; Robert Palmer, town clerk; Frank Basile, C. P. Scullio and W. F. McDonald, selectmen.

Titusville, Pa.—Charles B. Morgan, mayor.

# NEW APPLIANCES

Describing New Machinery, Apparatus, Materials and Methods and Recent Interesting Installations.

## REINFORCING MESH.

### For All Types of Concrete Construction.

Kahn Mesh is an improved type of expanded metal in mesh form used for reinforcing concrete in the construction, for instance, of such a range of work as roads, walls, bridges, sewers, conduits, culverts and tanks.

The mesh is manufactured by a cold drawn process which increases the ultimate strength from 40 to 50 per cent and the elastic limit 100 per cent. As the entire mesh is made from a single sheet of steel, there is an absolute bond between the various members and between the steel and the concrete—and all possibility of slipping is eliminated. All members are effective in resisting strain. The mesh is uniform in quality under all conditions. The reinforcement is taut and the sheet, being rigid, cannot be displaced in pouring, does not spring out of place or become distorted. Owing to the thoroughness of the bond of the mesh in the concrete, sheets may be lapped at any point and the full strength of the material developed.

These qualities have been found advantageous in using Kahn mesh for sewers and conduits. There is no danger of mistakes that may occur in handling loose rods as all members are accurately placed at one operation. There is no cutting of sheets to length. In placing in this work the long way of the diamond should extend around the circumference of the sewer. With one layer the sheet comes within 1

inch of the inside surface at the top and bottom of the ring, and within 1 inch of the outside at the sides.

Kahn road mesh differs from the mesh used for other construction in having 6 by 12 inch diamonds instead of 3 by 8 inch. It is designed to give a greater area of reinforcement extending across the width of the pavement, but also with sufficient transverse reinforcement. The standard sheet eliminates the trouble and expense of handling loose rods and the bother of reinforcement in rolls.

The accompanying illustrations show the Kahn mesh and the use of Kahn road mesh on a concrete pavement in Hamtramck, Mich. The mesh is made by the Trussed Concrete Steel Co., Youngstown, O.

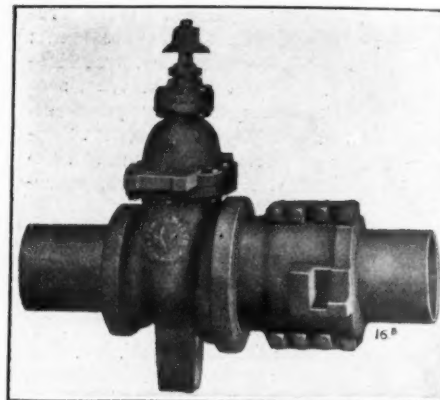
## VALVE-INSERTING MACHINE.

### Pipe Cut and Valve Inserted Under Pressure.

The continued extension and maintenance of any water supply system requires the frequent insertion of valves where existing ones are either defective or too far apart. Ordinarily, putting in valves necessitates the shutting off of the supply of a whole section, causing inconvenience to consumers and fire dangers. The use of a valve-inserting machine which installs the valves while the pressure is on eliminates these difficulties.

A double-headed cutting machine is used for cutting out the section of the pipe. This machine is placed on the main at the right point and the

pipe is cut about half way through. The special sleeve is then bolted around the pipe, the end of the sleeve being placed within a quarter of an inch of the cutting tool. The inserting machine is then bolted around the pipe



VALVE INSERTED.

and the sleeve, completely enclosing the cutting mechanism. The joints between the pipe and machine casing are leaded and calked. The pinion shaft is rotated until the pipe is cut through.

The cutting machine with the section of pipe cut out is then drawn up into the dome by means of the central rod G. The sliding valve E is closed and the dome removed. The cutting machine is taken out, the special valve substituted for it and the dome is replaced.

Reopening the sliding valve, the special valve is lowered into place be-

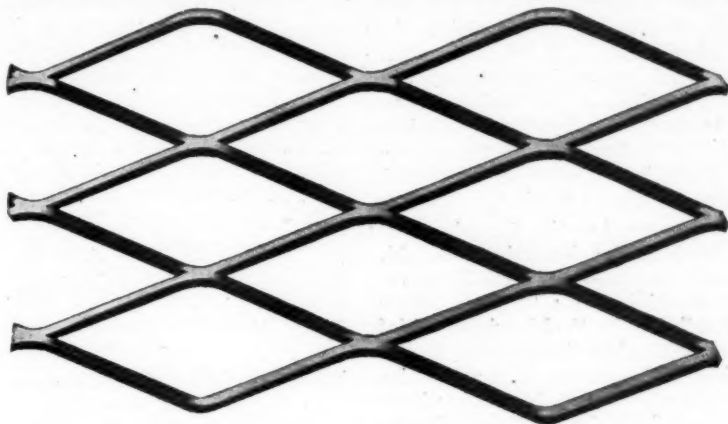


LAYING KAHN ROAD MESH.



tween the ends of the pipes. The sleeve is now forced forward by means of jacks until it enters the large hub of the special valve; continuing the motion, the opposite or small hub of the

time was made possible by the automatic dumping body. The total distance traveled was 28.30 miles and the hauls were comparatively short, being on an average of 0.786 mile per haul.



KAHN MESH FOR REINFORCING CONCRETE.

special valve is forced on the pipe. Both hubs are provided with wedge-shaped lugs, which center the pipe and sleeve ends and hold in place the rubber gaskets which make the temporary joints between those and the valve. The upper casing is removed and the joints at both ends of the valve and the sleeve joint are leaded and calked.

This valve-inserting machine has been widely used on all sizes of pipe, very frequently on 20-inch. In many cases the insertions were made under pressures of 100 pounds per square inch. In Dubuque, Ia., for instance, eight 20-inch insertions were made; in Springfield, O., six 20-inch and two 16-inch insertions. In Sioux City, Ia., a valve was inserted in 3 hours and 45 minutes. The illustrations show the inserting machine and cutting machine and also the final appearance of the work. The machines are made by the A. P. Smith Manufacturing Co., Norman street, East Orange, N. J.

#### Hauling Sand and Gravel.

The Federal Motor Truck Company, Detroit, Mich., is making a thorough and continuous research into actual costs of operating Federal trucks in all kinds of service. Recording tapes and service records are being sent in daily and detailed studies and comparisons with averages of costs and efficiency are made from them. One of the records recently received is of a 3½-ton Federal, operating in Atlantic City, N. J., for Wheeler & Dreher, contractors. The truck is equipped with an automatic hydraulic hoist dump body and is at present hauling sand and gravel.

On one day of which records were made, the truck delivered 68.4 tons of sand in 4 hours 49 minutes, at a cost of a little over 8 cents per ton. The total cost for the day's work, including every item chargeable to motor truck operation, was only \$5.96. There were 18 loads and 37 stops. The average loading time of 3.3 minutes was the result of the use of a special loading device. The short average unloading

Of the 4 hours 49 minutes total time worked, 1 hour 59 minutes was consumed by standing due to the congested traffic near the job.

## INDUSTRIAL NEWS

**Cast Iron Pipe.**—Chicago—With the exception of a few small municipal tonnages, the demand for pipe is seasonably small. Quotations: 4-inch, \$28; 6-inch and up, \$26; Class A, \$1 extra. Birmingham—There has been no change in the lull characterizing the pipe market beyond the receiving of one or two fair-sized orders by the leading interests. Manufacture continues on the same scale. Quotations: 4-inch, \$22; 6-inch and up, \$20. San Francisco—Southern California has taken a little more tonnage, Los Angeles having placed an order for 1,397 tons, while a water district in Los Angeles county has taken figures on about 400 tons. The City of Pocatello, Idaho, is about to start work on a water system requiring 26 mile of pipe of indefinite material. Quotations: 6-inch, \$31; 4-inch, \$33; Class A, \$1 extra. New York—New Bedford, Mass., is opening bids Nov. 4 on 971 tons of 6 to 30-inch, mostly the latter. The expected purchase by Jersey City of a large amount of flexible joint pipe has not yet come to the point of advertising for bids. Prices are firm. Quotations: 6-inch, Class B and heavier, \$26; Class A, \$27.

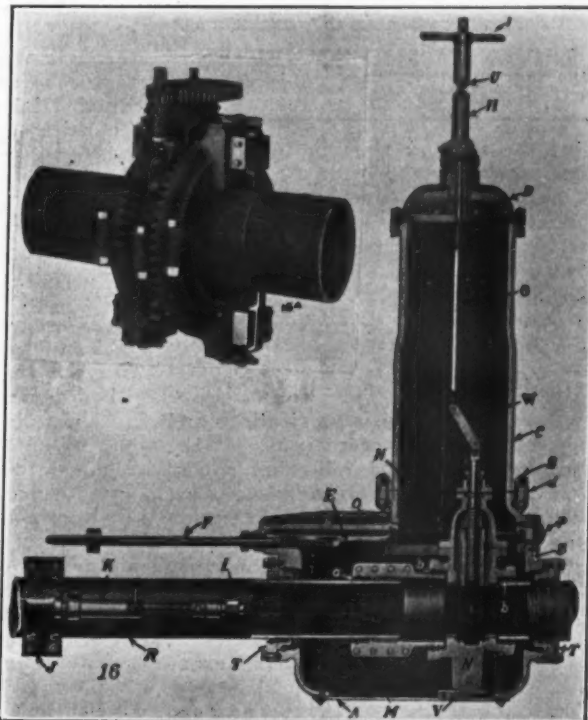
**Lead.**—Lead has been quieter since the recent advance to 4.75 cents.

Quotations: New York, 4.75; St. Louis, 4.625.

#### Clay Products in the United States.—

In a report on the clay-working industries of the United States in 1914 by Jefferson Middleton, issued by the United States Geological Survey, the value of the clay products of this country in 1914 are given as \$164,986,983—brick and tile \$129,588,822 and pottery \$35,398,161. This was a considerable decrease compared with 1913, but as compared with the value of the last 20 years it shows a great growth in the industries. In only four years—1909, 1910, 1912 and 1913—has the total value of clay products exceeded that of 1914. Considered by the average for five-year periods, which is perhaps the fairest comparison, as unusual conditions may occur in a single year, the average annual value of the clay products of the United States was: 1895-1899, \$72,233,056; 1900-1904, \$118,135,826; 1905-1909, \$153,838,231; and 1910-1914, \$170,287,909. It will be seen that the value of the clay products of the country has considerably more than doubled in the last 20 years. With the revival of business the great clay-working industries will come into their own, the halt of 1914 being but a temporary setback which will be more than overcome in the near future. The wide publicity given to the brick industries by the "build with brick" and "pave with brick" movements started in 1914 can not but prove of inestimable benefit in the extension of the use of brick.

Clay products are made in every State. Of the territories, Alaska and Hawaii reported none. The value of clay products ranged in 1914 from \$5,974 in Porto Rico to \$37,166,768 in Ohio. Ohio reported over one-fifth of



PIPE CUTTING AND VALVE INSERTING MACHINE.

the value of clay products in 1914 and has been the leading state since figures on this subject were first compiled by the Geological survey in 1894. It is likely to maintain this position, as its output has always greatly exceeded that of the second state, Pennsylvania, and in 1914 this excess was \$15,319,722, or over 70 per cent. Pennsylvania's output in 1914 was valued at \$21,846,996, or over one-eighth of the total for the United States. New Jersey ranked third in 1914, with products valued at \$16,484,652. Illinois was fourth, with products valued at \$13,318,953, and New York was fifth, with products valued at \$9,078,933.

The strip of land along Hudson River from New York City to Cohoes, including Bergen and Middlesex counties, N. J., is the greatest brick-making district in this country, and probably in the world. New York City is the leading common brick market in the United States, about a billion bricks being used there annually, the principal source of supply being the Hudson River region. Connecticut brick is sometimes a factor in this market, but only when prices are high, as the cheap transportation by water gives the New York-New Jersey brick a great advantage. In 1914 prices were very low and few if any other brick entered this market.

In 1914 there were marketed from this region 888,266,000 common brick, valued at \$4,350,832, or \$4.90 a thousand. This was a decrease of 137,042,000 brick and of \$1,285,229 from 1913. The New York portion of the region supplied 679,120,000 brick, valued at \$3,283,399, or \$4.83 a thousand, a considerable decrease from 1913. There were 109 firms operating in the New York portion of the region in 1914, of whom 24 were located in Ulster County and 23 in Rockland County.

## NEWS OF THE SOCIETIES

(Continued from page 707)

At the evening meeting the following papers were read: "Concentric Wiring," by W. L. Gardner, of Topeka; "Transformers and Lightning Arresters," H. F. McReli, district transformer specialist, General Electric Company; "General Power Plant Lubrication," R. P. Tobin, Vacuum Oil Company, and "Steam Flow Meters," L. E. Northshield, district meter specialist, General Electric Company.

On Friday two business meetings and one social meeting were held. At the morning session the following papers were presented: "Merchandising, Past and Present, from a Central Station Standpoint," by B. J. Long, commercial manager, Topeka Edison Company; "Excess Indicators," by C. L. Wells, Western Electric Company; "Electric Drive for Flour Mills," by Charles A. Stanley, industrial engineer, Kansas Gas & Electric Co.; "Central Station Power for Irrigation," by C. A. Fees, Kansas Gas & Electric Co., Wichita.

In the afternoon George C. Schaad, professor of electrical engineering of the University of Kansas, read a paper on "A New Utility Law for Kansas." B. E. Jacks, business manager of the Salina Light, Power & Gas Co., spoke on "Selling Electric Advertising in Small Cities," and P. F. Walker, dean of the school of engineering of the University of Kansas, on "Boiler Room Standards in the Utility Plant's Boiler Room." C. J. Carlson, of the Commonwealth Edison Company, discussed "Electrical Refrigeration."

Papers presented at the Saturday session included "City Pumping," by M. Dunsworth, manager of the Emporia Railway & Light Co.; "Steam Boiler Inspection," by J. P. Morrison, chief inspector of the Hartford Steam Boiler Inspection & Insurance Co., and "The Panama Canal," by A. N. Richardson, general superintendent of the Kansas City Electric Light Company.

The meetingplace for the 1916 convention was not determined, though Topeka and Salina put in bids.

At the final session, the name of the association was changed to the Kansas Public Service Association, and the following officers elected: A. H. Purdy, Topeka, president; W. R. Waggoner, Salina, vice-president; L. G. La Fite, Eureka, vice-president; W. J. Welfelt, Winfield, vice-president; E. A. Wright, Manhattan, secretary; J. D. Nicholson, Newton, treasurer.

The members of the executive committee are: A. M. Patten, Topeka; L. O. Ripley, Wichita; C. L. Brown, Abilene; L. K. Green, Concordia, and M. T. Flynn, Kansas City, Kan.

## Rhode Island State Conference of Charities and Corrections.

Charity problems in their many phases as they confront workers throughout the country were discussed at the seventh annual meeting of the Rhode Island State Conference of Charities and Corrections held at Bristol, October 20. Sessions were held in the morning and afternoon and in the evening following the annual dinner.

Directors of institutions conducted by this state and leaders in charitable and social organizations from New York and Massachusetts were the speakers. Members were urged to use their influence to secure sufficient appropriations for charitable relief in Rhode Island.

"Unemployment" was discussed at the evening meeting by Frederick H. Diamond, manager of the Emergency Employment Bureau in this city. Chas. B. Rockwell, of Bristol, told of his experience in forty years as an employer of men. A critical time, he believes, in the contention over shorter hours, better pay and working conditions has been reached.

The following officers were elected for the ensuing year: President, Dr. W. H. P. Faunce; secretary, Miss Harriet E. Thomas; assistant secretary,

Miss E. Frances O'Neill; treasurer, Miss Anna F. Hunter.

Ten vice-presidents were elected, as follows: F. F. Woolley, former Governor Aram J. Pothier, Mrs. H. I. Cushman, Mrs. Joseph Howland, Charles Parry, Charles B. Rorhull, Bishop J. De Wolf Perry, Jr., Justice D. Baker, Mrs. A. W. Congdon and Mrs. Sturgis.

On the executive committee for the ensuing year are Prof. J. Q. Dealey, Dr. H. L. Barnes, Miss Alice W. Hunt, Miss E. Frances O'Neill, Mrs. De Wolf, Rev. S. M. Cathart, Col. Harry Cutler, Willis E. Chandler, Dr. J. H. Ladd, Mrs. H. E. Maine, Rev. H. W. Watjen, Dr. George Simpson, M. J. Cummings, William P. Sheffield and Mrs. Dexter Thurber.

## West Virginia Police Chiefs and Peace Officers' Association.

At the annual meeting held at Clarksburg October 20, Huntington was selected as the next convention city and the following officers elected: H. L. Brooks, Clarksburg, president; Adam I. McCoun, Charleston, vice-president; A. R. Hunt, Huntington, secretary, and W. W. Ours, Fairmont, assistant secretary. Executive committee: Thomas Leyland, Wheeling; Samuel Davis, Huntington; Howard Hastings and Walter Worls, of Wheeling, and William Herold, Charleston.

## League of New Jersey Municipalities.

Tentative plans looking to the holding of a convention of municipalities at Trenton, N. J., December 1, have been made by members of the executive committee of the League of New Jersey Municipalities, in session at that city. Another session of the committee will be held in the near future at which time it is believed the arrangements for the big gathering will be completed.

Plans looking to the increasing of the membership of the league were also discussed and it is quite likely that a campaign along this line will be mapped out.

## Highway Superintendents' Conference.

The meeting of the county highway superintendents of the northeast division of Illinois met October 18 at Waukegan. The following papers were read and discussions held:

Railroad Crossings—"Eliminating Grade Crossings," Mr. Smith; "Improving Grade Crossings," Mr. Gates; "Safety Devices or Signals," Mr. Humphrey, Road Drainage—"Ditches for Earth Roads," Mr. Stine; "Co-operation with Land Owners," Mr. Tryon; "Drainage for Surfaced Roads," Mr. Bushnell. Recording of Contracts—"Book, Forms Used," Mr. Miller; "Machinery Purchases—How Recorded," Mr. Chas. E. Russell; "Bridge and Road Contracts—How Recorded," Mr. Quinlan. Traffic Census—"Value of Traffic Census," Mr. John D. Russell; "How Secured," Mr. Enos; "Keeping Traffic Record," Mr. Carter.



# ADVANCE CONTRACT NEWS

## ADVANCED INFORMATION BIDS ASKED FOR

## CONTRACTS AWARDED ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

### BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>STREETS AND ROADS</b>				
O.	Youngstown	1 p.m., Nov.	6..Constructing three miles slag macadam road	C. F. Shipley, Clk. R. F. D. 1.
Ky.	Wyckliffe	Nov.	6..Gravelling 2.5 miles of road	Ballard Fiscal Court.
N. J.	Woodbridge	8.30 p.m., Nov.	8..Constructing concrete slag road	A. Keyes, Twp. Clerk.
Conn.	New Haven	2 p.m., Nov.	8..Grading and widening street	F. L. Ford, City Engr.
N. J.	Newton	11 a.m., Nov.	8..47,080 yds. macadam improvements	R. L. Slater, Clk., Freeholders.
Ind.	Princeton	Nov.	8..Constructing two miles 6-ft. concrete walk	H. J. Toelle, City Engr.
Tex.	Hondo	Nov.	8..Constructing 20 miles of gravel road	H. F. Wurzbach, Co. Comr., Cliff.
W. Va.	Huntington	Nov.	8..Paving three streets	O. H. Wells, Street Comr.
Tex.	Beaumont	Nov.	8..Constructing 11 miles of road	County Comrs.
O.	Columbus	noon, Nov.	8..Constructing sidewalk	C. E. Manning, Mayor, Harris- burg.
N. J.	Highland Park	8 p.m., Nov.	8..Constructing sidewalks on several streets	F. A. Metzrath, Boro. Clk.
Miss.	Columbus	Nov.	8..Constructing 35 miles macadam road	G. E. Hauser, Engr.
Ind.	Peru	noon, Nov.	8..Grading, paving and improving road	F. K. McElheny, Co. Aud.
Tenn.	Maynardville	Nov.	8..Constructing macadam road and bridges	G. M. Taylor, Chr. Co. Comm.
Ind.	South Bend	11 a.m., Nov.	8..Constructing three gravel roads	Clarence Sedgwick, Co. Aud.
O.	Euclid	Nov.	8..Grading, draining and paving with brick	H. S. Dunlop, Vil. Clk.
Cal.	Bakersfield	Nov.	8..Improving Bakersfield-Mojave Road	Co. Bd. of Supervisors.
Fla.	Miami	7.30 p.m., Nov.	8..Grading and paving with asphaltic concrete and with sand and asphalt oil	W. B. Moore, City Clerk.
O.	Harrisburg	noon, Nov.	8..Constructing sidewalks	C. E. Manning, Mayor.
N. J.	Trenton	Nov.	9..Constructing state road at Hightstown	State Road Commr.
Fla.	Titusville	Nov.	9..Constructing 68 miles of road; cost, about \$150,000	S. A. Osteen, Chr. Co. Comrs.
N. Y.	Albany	Nov.	9..Paving terminal site	W. W. Wotherspoon, Supt. P. W.
Md.	Easton	Nov.	9..Constructing 4.24 miles shell or macadam road and three miles macadam or concrete	J. R. Harrington, Clk. Co. Com.
N. J.	New Brunswick	10 a.m., Nov.	9..22,000 yds. brick, asphalt or warrenite pavement	A. Atkinson, City Engr.
Mass.	Sheffield	M., Nov.	9..19,000 ft. state highways	Mass. Highway Commission, 15 Ashburton Pl., Boston.
S. C.	Greenwood	4 p.m., Nov.	10..60,000 sq. yds. street paving, 10,000 sq. yds. cement gut- ters, 12,000 lin. ft. granite curb, 10,000 lin. ft. storm sewers, 12 to 26-in., 25 manholes, 80 intake basins, etc.	C. P. Ballenger, City Engr.
N. J.	Newton	Nov.	11..Improving macadam road	Harvey Snook, Co. Engr.
N. Y.	Albany	1 p.m., Nov.	11..Constructing 49 miles state highway	Edwin Duffey, Comr.
Ind.	New Albany	Nov.	11..Constructing 10,200 ft. road; cost, \$10,000	J. T. Miller, Co. Aud.
N. C.	Charlotte	Nov.	11..Constructing 17,500 sq. yds. cement sidewalk	S. H. Lea, City Engr.
Mich.	St. Joseph	Nov.	11..Constructing 48½ miles of waterbound macadam road, cost \$340,000	W. J. Clearv. Co. Hwy. Engr.
N. Y.	New York	2 p.m., Nov.	11..Constructing stairway at 138th St.	M. M. Marks, Borough Pres.
N. Y.	New York	10.30 a.m., Nov.	11..Paving with bituminous concrete several streets	Douglas Mathewson, Bor. Pres.
O.	Toronto	noon, Nov.	12..Grading, draining, curbing and paving streets	J. E. Kelley, Village Engr.
N. J.	Hackensack	Nov.	12..Grading, guttering and paving with asphalt	A. V. Morrison, Chr. of Comm.
S. C.	Charleston	11 a.m., Nov.	13..Constructing roadway at Navy Yard	H. R. Stanford, Ch. Bur. Yds. & Dks.
Neb.	Lincoln	2 p.m., Nov.	15..Street paving in District No. 9	H. E. Wells, Co. Clk.
Tenn.	Sweetwater	Nov.	15..Street paving, cost \$5,000	W. T. Lenoir, Mayor
N. D.	Medora	10 a.m., Nov.	15..Constructing cut, fill and rip-rap at bridge	J. A. Berry, Co. Aud.
O.	Cleveland Heights	noon, Nov.	15..Grading, draining and paving with brick, asphalt or macadam and constructing sidewalks	F. A. Pease Engrg. Co., Clevel- land.
Pa.	Greensburg	M., Nov.	15..57,125 yds. brick paving, 48,000 yds. excavation, 65,000 ft. concrete curbing and 2,150 ft. pipe	J. S. Sell, Co. Controller.
N. J.	Bloomfield	8 p.m., Nov.	15..Constructing 18,000 ft. bluestone and concrete curb, re- inforcing, etc.	R. F. Davis, Town Clerk.
Cal.	Santa Ana	Nov.	16..Paving road	County Supervisors.
Del.	Wilmington	noon, Nov.	16..Constructing and improving Philadelphia turnpike	Jas. Wilson, State Hwy. Comr.
Ill.	Pekin	noon, Nov.	16..Constructing walks and curbs	Geo. Behrens, Co. Clk.
W. Va.	Charleston	11 a.m., Nov.	17..Constructing 1¼ miles brick, concrete or macadam pav- ing	L. C. Massey, Cl. Co. Comrs.
Okl.	Lawton	2 p.m., Nov.	17..Grading streets	R. P. Sanders, Comr. Public Property.
Ala.	Dothan	Nov.	18..Constructing 42 miles sand-clay road	Co. Board of Revenue.
O.	Cincinnati	noon, Nov.	19..Improving several streets	Albert Reinhardt, Cl. Co. Coms.
Tex.	Beaumont	Nov.	19..Constructing 11 miles of road	Commissioners' Court.
O.	Shaker Heights	noon, Nov.	30..Grading, draining and constructing sidewalks	C. A. Palmer, Vil. Clerk.
Neb.	Hastings	Dec.	1..Paving 50 blocks with vertical fiber brick or asphaltic concrete	W. H. Fuller, City Engineer.
Kan.	Atchison	Mar.	1..Paving several streets	V. L. King, City Clerk.
<b>SEWERAGE</b>				
Wis.	West Bend	10 a.m., Nov.	6..Constructing main ditch and four laterals; removing and re-setting two iron bridges	C. F. Leins, Sec. Co. Comrs.
Minn.	St. Paul	10.30 a.m., Nov.	8..Constructing sewers on several streets	August Hohenstein, Pur. Agt.
Fla.	Miami	7.30 p.m., Nov.	8..Laying 1,430 ft. of 18 to 48-in. sewer	W. D. Moore, City Clerk.
Wis.	Oshkosh	2 p.m., Nov.	8..Constructing sewer	G. H. Randall, Chr. D. P. W.
Ind.	South Bend	10 a.m., Nov.	9..Constructing pipe sewer	Veronica Sweeney, Clk. B. P. W.
Ont.	Toronto	M., Nov.	9..Constructing sewers in four streets	T. L. Church, Chr. Bd. Control.
La.	Sioux City	M., Nov.	9..Constructing ditches and laterals, requiring 154,408 cu. yds. excavation	E. E. Hosmer, Co. Aud.
N. Y.	Yorktown Heights	Nov.	9..Sewerage and sewage disposal plant at training school	L. F. Pilcher, State Architect, Albany.

## BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
S. C.	Greenwood	4 p.m., Nov. 10	Constructing 10,000 ft. of 12 to 26-in. storm sewers, 25 manholes, 80 intake basins, etc.	C. P. Ballenger, City Engr.
N. Y.	New York	2 p.m., Nov. 10	Making repairs to several sewers	M. M. Marks, Boro. Pres.
N. Y.	New York	10.30 a.m., Nov. 11	Constructing sewers on several streets	D. Mathewson, Boro. Pres.
Minn.	Alexandria	10 a.m., Nov. 12	Constructing county ditch, estimated cost \$14,800	C. H. Jensen, Co. Aud.
Ill.	Wyanet	2 p.m., Nov. 12	Constructing drainage ditches	Amos Krager, Drainage Comr.
N. Y.	Greenwich	2 p.m., Nov. 14	Constructing 7,150 ft. 4 to 12-in. sewers, 20 manholes and flush tanks	A. H. Wilcox, Pres. Bd. Trus.
Ill.	Rock Island	Nov. 15	Sewer system and sewage disposal plant	Wallace Trichler, City Engr.
O.	Warrensville	Nov. 15	Constructing sanitary sewers and paving with brick, asphalt or macadam	H. H. Canfield, VII. Clk.
Mo.	New Madrid	2 p.m., Nov. 15	300,000 cu. yds. levee work	Miller Engrg Co., Little Rock, Ark.
N. J.	Bloomfield	8 p.m., Nov. 15	Laying 150 ft. of 12 and 15-in. sewer and making 132 sewer connections	R. F. Davis, Town Clerk.
O.	Vermillion	noon, Nov. 16	Constructing sanitary sewer system and disposal plant	Lewis Clattner, VII. Clk.
O.	Sandusky	Nov. 18	Constructing intercepting sewer, cost \$98,000	J. J. Molter, Dir. P. S.
la.	Spencer	Nov. 23	Change of date for drainage work	County Auditor.
la.	Oakland	Nov. 23	Constructing 13,200 ft. 8 to 15-in. sewers	E. F. Wentz, City Clk.
Tex.	San Benito	M., Nov. 24	Constructing sewage disposal plant	J. H. Lyons, Mayor.
Wash.	Meadow Creek	2 p.m., Dec. 1	Clearing reservoir site	U. S. Reclamation Service.
Ill.	Chicago	noon, Dec. 2	Constructing 8,600 ft. 16½-ft. sewer in open cut	John McGillan, Clk. Sant. Dist.
La.	New Orleans	noon, Dec. 3	Labor-material-percentage construction	Sewerage & Water Board.
WATER SUPPLY				
Fla.	Jacksonville	noon, Nov. 8	Constructing 50,000-gal. water tank on metal tower	F. W. Bruce, Ch. Engr.
Minn.	International Falls	Nov. 8	Constructing two 4-in. wells	Annie Shelland, Clk. Bd. Ed.
D. C.	Washington	Nov. 9	Furnishing two wooden water tanks	Bureau of Sup. & Accts., Navy Dept.
N. Y.	Brooklyn	Nov. 9	Brass cocks, check and gate valves	Bureau of Sup. & Accounts, Washington, D. C.
O.	Belleville	Nov. 9	Deep well pump, has engine, 5 miles of main and storage reservoir	Smith & Boulay, Nasby Bldg., Toledo.
Neb.	Bayard	Nov. 11	6,600 ft. 5-in. and 6,600 ft. 4 to 8-in. water mains and well	Finley & Selzer, Engrs., Scotts-bluff.
O.	Columbus	Nov. 11	Water softening equipment for Institution of Feeble-Minded	H. S. Riddle Cons. Engr., Ohio Bd. Administration.
Mo.	St. Louis	noon, Nov. 12	Removing old steam lines and furnishing and installing steam pipe, valves and fittings at pumping station	E. R. Kinsey, Pres. B. P. S.
O.	St. Clairsville	1 p.m., Nov. 15	Repairing water reservoir at county infirmary	Emerson Campbell, Co. Aud.
Tex.	Ft. Sam Houston	Nov. 18	Constructing water distributing system	Constructing Quartermaster
W. Va.	Clarksburg	Nov. 26	Two gas engines and two pumps to be installed at present station	Scotland G. Highland, Sec. Water & Sew. Board.
O.	Shaker Heights	noon, Nov. 30	Laying 10-in. water main	C. A. Palmer, Clk., 2855 Coventry Road.
O.	E. Youngstown	Dec. 1	Water system; estimated cost, \$165,000	Carl Anderson, VII. Clk.
N. J.	Jersey City	2 p.m., Dec. 2	Constructing 11 miles 72-in. steel pipe line and furnishing and laying a double line of 48-in. c. i. pipe under Passaic and Hackensack Rivers	M. I. Fagan, Clk.
La.	New Orleans	Dec. 3	Laying water mains	F. S. Shields, Sec. Sewer and Water Board.
LIGHTING AND POWER				
N. Y.	Albany	noon, Nov. 8	Furnishing and installing fixtures and electric lamps for county court house	Clerk, Board of Supv.
Cal.	Ft. Mason	10 a.m., Nov. 8	Furnishing five 25 to 40 H.P. tubular boilers	Lieut. W. H. Hart, Dep. Qrmr.
D. C.	Washington	10 a.m., Nov. 9	Electrical equipment, oxygen compressor, etc., for Mare Island Navy Yard	Bureau of Sup. & Accts., Navy Dept.
N. J.	Woodbridge	8 p.m., Nov. 9	Lighting streets with 63 25-c.p. lamps	B. P. Baldwin, Chr. of Comrs.
Pa.	Pittsburgh	11 a.m., Nov. 11	Electrical and power equipment for city and county buildings	H. M. Cribbs, Co. Controller.
N. J.	Orange	Nov. 15	Furnishing and installing lighting fixtures in Post Office	Supv. Archt., Washington.
D. C.	Washington	Nov. 15	Copper cable, steel wire, street lamps, etc.	Gen. Pur. Officer, Panama Canal.
Ont.	Toronto	noon, Nov. 16	Furnishing lead covered cable	Pur. Agt., 15 Wilton Ave.
Hawaii	Pearl Harbor	Nov. 27	Constructing reinforced concrete power house and other buildings	Commandant, Naval Station.
D. C.	Washington	10 a.m., Nov. 17	Central light and power plant	Supervising Architect.
Pa.	Philadelphia	noon, Nov. 22	Furnishing electric lamps and lighting streets for 1916	Robt. Gripps, Dir. Pub. Safety.
FIRE EQUIPMENT				
Fla.	Jacksonville	noon, Nov. 8	Installing sprinkler system	F. W. Bruce, Ch. Engr.
D. C.	Washington	2 p.m., Nov. 8	Constructing engine house	Chief Clk. Engineer Dept.
Minn.	Shakopee	8 p.m., Nov. 8	Motor-driven fire engine and chemical	J. B. Strunk, Sec. Firemen's Relief Assn.
Wash.	Puget Sound	10 a.m., Nov. 9	7,200 ft. rubber fire hose	Navy Pay Office.
N. Y.	Rochester	10.30 a.m., Nov. 10	Sprinklers for Iola sanitarium	H. W. Cutler, Architect, Cutler Bldg.
Va.	Front Royal	2 p.m., Nov. 15	Constructing fire station	Constructing Quartermaster.
D. C.	Washington	2 p.m., Nov. 18	Furnishing 25,000 ft. fire hose	Purchasing Officer, Rm. 320, District Building.
BRIDGES				
Kan.	Lawrence	noon, Nov. 6	Constructing two bridges	County Clerk.
Pa.	Johnstown	11 a.m., Nov. 6	Constructing 225-ft. ribbed arch bridge	H. H. Gravier, Supt. Hwys.
Pa.	Beaver	10 a.m., Nov. 6	Building reinforced concrete bridge over Pine Run	C. H. Stone, Chr. Co. Commrs.
Cal.	Bakersfield	Nov. 8	Grading and constructing bridges and culverts	H. A. Jastro, Chr. Co. Supv.
Miss.	Meridian	11 a.m., Nov. 9	Constructing reinforced concrete bridge	J. O. Wise, Sec. Good Rd. Com.
Kan.	Iola	noon, Nov. 10	Replacing and repairing bridge	J. H. Brown, Chr. Co. Commr.
Ill.	Marshall	2 p.m., Nov. 11	Constructing steel I-beam bridge, cost \$3,460	Zane Arbuckle, Co. Supt. Hwys.
Cal.	Santa Ana	Nov. 13	Constructing 200-ft. pile bridge	Co. Bd. of Supervisors.
N. D.	Medora	10 a.m., Nov. 15	Cut, fill and rip-rap at bridge	County Auditor.
Cal.	Los Angeles	2 p.m., Nov. 15	Constructing bridge over San Jose creek	H. L. Lelande, Co. Clk.
La.	New Orleans	Nov. 16	Steel frame concrete-covered viaduct	A. G. Ricks, Comr. Pub. Finance.
Md.	Cumberland	Nov. 18	Reinforced concrete bridge to cost \$2,000	E. L. Williams, 10 N. Liberty.
Ida.	Parma	Nov. 22	Constructing steel bridge to cost \$16,000	Inland Engr'g Co., Caldwell.
Fla.	Tampa	Nov. 26	Constructing bridge over Little Manatee River	W. P. Culbreath, Clk. Co. Com.
China	Canton	Dec. 7	Steel bridge work for railway	R. W. Hunt Co., Cons. Engrs., Pittsburgh, Pa.



## BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>MISCELLANEOUS</b>				
Ill.	Chicago	11 a.m., Nov. 6	Furnishing 20 tons of lead pipe	W. R. Moorehouse, Comr. P. W.
N. Y.	New York	11 a.m., Nov. 9	Furnishing 80 tons relayer rail	K. B. Davis, Comr. Corrections.
O.	Cincinnati	M. Nov. 9	Furnishing one 5-ton gasoline tractor	E. Von Bargaen, City Pur. Agt.
La.	New Orleans	Nov. 9	Erecting asphalt repair plant	City Engineer.
Ind.	Boone	Noon, Nov. 10	Constructing court house and heating plant	J. R. Curry, Co. Aud.
N. Y.	New York	10 a.m., Nov. 10	Furnishing 300 steel lockers	A. Woods, Police Comr.
D. C.	Washington	Nov. 16	Furnish and erect steel oil storage tank	F. C. Boggs, Gen. Pur. Off., Panama Canal.
Va.	Richmond	Nov. 16	Garbage for one, two or five years	Comr. of Public Works.
Tex.	El Paso	Nov. 17	Excavation work on several canals	U. S. Reclamation Service, Mills Bldg.
D. C.	Washington	2 p.m., Nov. 18	Two 2-passenger automobiles for use of fire department	Purchasing Officer, District Building.
D. C.	Washington	3 p.m., Nov. 18	Extending and remodeling postoffice at Boise, Idaho	Supervising Architect
O.	Elyria	3 p.m., Nov. 19	Construction complete of postoffice	Supv. Arch't., Washington

## STREETS AND ROADS

**Bay Minette, Ala.**—County will vote Dec. 15 on question of issuing road bonds in sum of \$55,000.

**Tucson, Ariz.**—Fulfilling request of mass meeting that they specify definitely just what county roads would be constructed in case proposed bond issue for \$300,000 for county roads carries at election the advisory committee, meeting with County Engineer Goetz and Chairman Estill of the Board of Supervisors, made recommendations of different roads to be constructed with the money available. They also made recommendation that Mount Lemmon road should not be constructed at present in case estimates should show that it would cost more than \$100,000. The roads recommended by committee are as follows: 1. A road through Santa Cruz valley from Tucson to the Santa Cruz county line. 2. From the San Xavier mission west towards the Ajo country. 3. Rebuilding of the Speedway and on to Tanque Verde. 4. A road from the Oracle road along the Rillito to meet the Fort Lowell road. 5. A road toward Red Rock to meet a road to be built by Pinal county from that place. 6. A road along the Espee tracks to Jaynes station.

**Pasadena, Cal.**—Resolution has been adopted for improvement of Hillside terrace.

**Pasadena, Cal.**—Resolution of the Commission of the City of Pasadena ordering work on Colorado St. in said city has been adopted.

**San Diego, Cal.**—The first step toward building of up-to-date boulevard from Coronado Hotel south along ocean front to Imperial Beach and thence east to Nestor to connection with the Tia Juana Blvd. now under construction through San Ysidro has been taken by supervisors.

**Denver, Colo.**—The south Golden road has been decided upon for new hard surface highway between Denver and Golden, according to Frederick C. Steinhauer, superintendent of parks. Plan to start work on road this fall, however, has been abandoned because of advanced season of year, and will be started next spring. Either concrete, asphalt or some other durable surface will be laid at cost of between \$12,000 and \$15,000 a mile. Arrangement between state and city for construction of road from city limits to Golden calls for laying 8.6 miles, of which city will construct one mile and state highway commission 7.6 miles. City will probably construct first mile. Selection of material has been left in hands of state highway commission, which will meet Nov. 3.

**Wilmington, Del.**—Merchants whose places of business are on King St. have started movement to try to have that thoroughfare paved with bitulithic and more elaborately lighted.

**Washington, D. C.**—An American consular officer in Australia states that a commercial organization in that country desires the names and addresses of American exporters of asphalt used in making varnish. No. 18,953, Bureau of Manufactures.

**Fort Meyers, Fla.**—Election will be held Nov. 9 to vote on question of issuing special road district No. 2 bonds in sum of \$323,500.

**Pensacola, Fla.**—Upon strength of report from Engineer Thornton, in which he recommended adoption of asphaltic paving about new hospital, Board of

Commissioners decided to reject all the paving bids, offered in response to advertisements which had been inserted by the board.

**Pensacola, Fla.**—County will vote on bond issue of \$1,000,000 for constructing hard surfaced roads and steel bridges at special election to be held Feb. 1.

**Pensacola, Fla.**—Asphaltic paving may be adopted as material to be used on three paved streets skirting new Pensacola hospital building.

**Ottawa, Ill.**—Proposition of creating a \$1,500,000 bond issue for construction of hard roads will be submitted to voters of La Salle county.

**Peoria, Ill.**—The Galena Road Permanent Improvement Association proposes to improve road through Narrows with brick pavement and has appealed to automobile owners of Peoria and vicinity for their support in movement.

**Sterling, Ill.**—About two miles of paving will be constructed next season.

**Waukegan, Ill.**—Charles Russell, county superintendent of roads, has submitted proposition to supervisors whereby it will be possible to increase construction of state aid roads in Lake county, and for extending county aid for construction of system of county aid roads to be built of gravel or other hard road material. While aggregate amount of bond issue required would be about \$1,000,000, it is proposed to spread it over period of several years.

**Richmond, Ind.**—\$100,000 will be expended in Richmond next year for public improvements, pursuant to policy inaugurated this year, \$20,000 of which will be contributed out of the public funds, the remainder being assessed against the benefited property owners. The money will be used for the permanent paving of streets, extensions of and improvements to the sewer systems and the betterment of alleys.

**South Bend, Ind.**—The Hamilton road in Olive township connecting New Carlisle with Chicago road will cost \$29,304, according to estimate submitted by Viewers Henderson McClellan, A. M. Shimp and J. A. Whitesell. The road is 15,000 feet in length and is to be paved with brick block.

**Cherokee, Ia.**—City council adopted on Oct. 26 resolution of necessity ordering construction of 4½ miles of paving, curbs and gutters. Kind of paving not decided upon as yet, nor date set for letting. Wm. Shardlow is City Clerk.

**Muscatine, Ia.**—Ordinances have been adopted for improvement of various streets.

**Keokuk, Ia.**—The paving with concrete of alley in block 12, Reeves, Perry and William addition to Keokuk, situated between 15th, 16th, Concert and High Sts., will be one of last improvements undertaken by city before winter sets in.

**Lexington, Ky.**—Ordinance has been adopted ordering improvement of High St. from the intersection of Maxwell St. to the Q. & C. switch, was read and ordered placed on file one week for public inspection.

**Baltimore, Md.**—Lowest bidders on Contracts Nos. 122 and 123 are as follows: Contract No. 122, The Baltimore Asphalt Block & Tile Co., at \$5,131, and Contract No. 123, George Long Contracting Co., at \$6,438.15. J. Myers Hedian is secretary.

**Clinton, Mass.**—Engineer Horace A. Thissell has made a survey of south side of Water St. Tuesday afternoon as preliminary to plans of road commis-

sioners to widen Water St. between Main and High Sts.

**Bay City, Mich.**—Board of Supervisors has voted to spend \$57,000 in good roads during coming year.

**Flint, Mich.**—Renumbering of houses and business places in Flint where it is necessary so as to have uniform numbering system throughout city has been authorized by common council.

**St. Joseph, Mich.**—Board of County Road Commissioners of Berrien County will receive bids Nov. 11, 1915, for 48½ miles water bound macadam roads, 12 and 16 ft. in width. The roads are in different parts of county in sections from 2 to 6 miles in length. Approximate cost \$340,000. W. J. Cleary is county highway engineer.

**Newport, Miss.**—Election will be held Nov. 2 in Bellevue to vote on question of issuing street improvement bonds in sum of \$23,000.

**Greenwood, Miss.**—City has voted in favor of issuing street paving bonds in sum of \$7,500.

**Joplin, Mo.**—Resolution has been adopted declaring it necessary to improve north side of 7th St. from Main St. to west rail of the Frisco Railway Co., by reconstructing old stone gutters and concrete gutters in unsuitable condition for paving, and constructing in place thereof concrete gutters two feet wide, in accordance with plans and specifications for same, and general ordinances covering the construction of said gutters.

**Joplin, Mo.**—Construction of rock road between Joplin and Springfield is being considered.

**Joplin, Mo.**—Estimate on cost of paving with concrete the alley between Main and Virginia from 17th to 18th Sts. was ordered made upon motion of Council.

**Fremont, Neb.**—Board of public works has been instructed to advertise for bids for paving Park Ave. between Military and Eighth Sts.

**Omaha, Neb.**—City Commissioner Jardine has secured adoption of resolution by City Council, authorizing him to re-advertise for sidewalk bids for work let to G. Mancini, who has failed to observe his contracts with city.

**Dunellen, N. J.**—The borough council of Dunellen has petitioned the board to resurface New Market road, the borough having completed the sewerage work on this road.

**Woodbridge, N. J.**—The Woodbridge Township Committeemen have petitioned board to make county road and improve Chain Hill road running one and one-eighth miles from the Iselin-Woodbridge road to Colonia station. This road will shorten highway between New York and Philadelphia half a mile.

**Syracuse, N. Y.**—Further details of plan for connecting West Genesee St. with present State Fair Blvd. have been considered by City Planning Commission. It is intention of commission to work out plan to improve roadway through Lakeview Ave., making use of existing right of way and Hiawatha Ave. underpass at West Shore Railroad. Result will be improved connection between West Genesee St. and present boulevard at what is believed to be lowest possible cost. Plan under consideration does not call for parkway, and will leave for future development any project which may be adopted for attractive entrance and approach to boulevard.

**Syracuse, N. Y.**—Plans are being considered to extend streets on salt lands.

**Bismarck, N. D.**—Bismarck will try experiment of oiling its streets, probably this fall. In passing annual budget recently, city commission included appropriation of \$1,500. If plan proves successful service may be extended.

**Bismarck, N. D.**—Ordinance has been introduced providing for uniform system of street numbering and was placed upon its first reading.

**Mansfield, O.**—Only one bid was received for paving of Mendota St. from Lexington Ave. to Mulberry St. and no decision was reached. The bid was entered by L. W. Paule, city.

**Middletown, O.**—Bids will be received at office of City Auditor of city of Middletown, Ohio, until 12 o'clock noon, standard time, Nov. 17, for purchase of street improvement bonds in aggregate amount of \$25,000. Louis T. Nein is Auditor.

**Monroe, O.**—Frank Rogers, State Highway Commissioner, is in city in consultation with city road commissioners in final specifications of proposed good road between Monroe and Toledo. If specifications prove satisfactory and are approved by state highway department county road commissioners will proceed with steps preliminary to letting of contracts so as to be able to start on actual work of construction as early next spring as weather will permit. Mr. Rogers also is looking into proposition of building bridge across River Raisin about 4 miles west of city, which, if constructed, would connect two main roads, one on each side of the river leading from Monroe to Dundee.

**Niles, O.**—Bids will be received at the office of Auditor of City of Niles, O., until 2 o'clock p. m., Nov. 9, 1915, for purchase of bonds of said city in sum of \$800, issued for purpose of paying part of cost and expense of improvement of South Main St. from Second St. to Third St., by relaying sidewalk on both sides of said street.

**Youngstown, O.**—Voters of Mahoning county will be asked to approve tax levy of \$80,000 for road purposes at November election, this being part of campaign by good road enthusiasts throughout state to raise \$4,160,000 under new Cass road law.

**Portland, Ore.**—Road development which Roadmaster Yeon says should be carried on next year comprises improvement of feeder roads, which farmers must use to reach trunk roads; extension of base line road to the Sandy river, and such improvements as widening curves, constructing fences and gutters and building parking along Columbia River highway.

**Oil City, Pa.**—Final estimate of city engineer for grading, curbing and paving of W. 4th St. from Central Ave. to Wyllis St. for \$16,225.89, has been referred to superintendent of streets and public improvements.

**Central Falls, R. I.**—Councilman Hobson has presented resolution to appropriate \$1,300 to macadamize Lonsdale Ave. between Barber Ave. and Watson St.

**Narragansett, R. I.**—The taxpayers of town of Narragansett in special town meeting have passed resolution appropriating \$5,000, or so much as may be necessary, for completion of South Pier Rd.

**Westerly, R. I.**—Taxpayers of town of Narragansett, at special town meeting has voted to appropriate \$500 or as much as may be necessary for completion of South Pier road. Proposition was voted down at annual town meeting last July.

**Pulaski, Tenn.**—At special term of County Court held here resolution was adopted submitting good roads bond issue of \$500,000 to people at election to be held Dec. 20.

**Beaumont, Tex.**—Commissioners' court will open bids and let contracts shortly for 1500 yards of gravel to place on roads in Commissioner Carroll's precinct. A half mile of the Port Arthur road and a half mile of LaBelle road will be thus treated. The advertisement for bids calls for delivery of the material at Brooks.

**Columbus, Tex.**—Election will be held in near future to vote on question of issuing highway bonds in sum of \$100,000.

**Denison, Tex.**—Estimates and specifications have been prepared for paving several blocks on West Sears and Main Sts. Bids for this work have been asked

for. Grades have also been run for additional sidewalk construction on the City Park and this work will be under way shortly.

**El Paso, Tex.**—The Curtiss-Manning Co., through John S. Curtiss, has purchased from Reeves county \$100,000 of 5 per cent road bonds, which will be used in improving district No. 1, inclusive of Pecos City, the county seat. The bonds are of the 40-year period and were purchased at par and accrued interest, less commission of more than \$7,000.

**El Paso, Tex.**—County Commissioners' court has formally accepted bid of Jas. N. Wright & Co. of Denver, for the \$300,000 issue of road bonds voted Oct. 12. The bid was par and accrued interest.

**El Paso, Tex.**—Fort Bliss will be connected to city's paved streets by two new paved roads, if Mayor Tom Lea's suggestion to County Commissioners is carried out. Following voting of the \$300,000 bond issue for improvement of county roads, Mayor has suggested to Commissioners that part of the bond issue funds could be well spent in improving the two roads which now connect the fort with city, one from Country Club to fort and other from Richmond Terrace to post. Mayor has also suggested paved road to connect with proposed mesa scenic drive to be built by county and to connect with new county road system. The proposals of Mayor Lea will be considered at the next meeting of County Commissioners.

**Houston, Tex.**—Beaumont and Jefferson County have "come in" on better highway movement. Building of eleven miles of first-class highway, between China and Nome has just been authorized out of \$190,000 bond issue.

**Rusk, Tex.**—Election will be held Nov. 16 to vote on question of issuing road bonds in sum of \$150,000.

**Sherman, Tex.**—The Grayson County Commissioners' Court has authorized the construction of 8-ft. concrete sidewalk around courthouse and also construction of sidewalk leading from each corner of building to each corner of park surrounding courthouse. Walks will be put down at once.

**Sherman, Tex.**—See "Sewerage."

**Temple, Tex.**—Good road bonds amounting to \$400,000 issued in Brazos county, have been purchased by H. C. Poe of the Temple state bank.

**Terrell, Tex.**—Bids will shortly be asked for concrete sidewalks on Asylum Ave.

**Texarkana, Tex.**—Preliminary steps toward organization of road improvement district, under Act 138, introduced and passed at last session of Arkansas Legislature, between Texarkana and Garland City via Genoa, have been taken, and committee has started circulation of petition for signers in favor of proposed improvement. The approximate length of highway to be improved in this district is sixteen miles.

**Richmond, Va.**—Either a tunnel under Monument Ave. or depression of Richmond, Fredericksburg and Potomac Railroad tracks to enable streets crossing to preserve present surface grade were provisions of resolution adopted by council committee on streets. The administrative board, under same resolution, was instructed to prepare plans and specifications showing feasibility of such proposals. To give engineering department sufficient time to prepare plans Nov. 29 was fixed as next meeting.

**Moundsville, W. Va.**—Council has ordered improvement of various streets.

**Moundsville, W. Va.**—City will pave Elm Ave. from 1st to Walnut Ave.; also plans to pave 7th St. to Western Ave. and Western Ave. to completed paving.

**Wheeling, W. Va.**—County Court has instructed County Clerk J. E. Chase to advertise for bids for improving Higgs Hill and River roads in Franklin district.

**Seattle, Wash.**—Following plans have been received from engineer: 20th Ave. South, concrete walks; estimated cost, \$3,300. Jackson St., sewers; estimated cost, \$5,000. W. Wheeler St., paving; estimated cost, \$2,000. First Ave. North, concrete walks; estimated cost, \$300. Second Ave. West, paving; estimated cost, \$2,500. N. 49th St., paving; estimated cost, \$2,200.

**Seattle, Wash.**—Ordinances have been introduced for improvement of various streets.

**Seattle, Wash.**—Resolution has been passed appropriating sum of \$81,000 to City from bond proposition No. 25 to cover cost of contract for improvement of East Marginal Way.

**Racine, Wis.**—Good roads advocates from city and country have taken action that will ultimately give town board of Caledonia \$10,500 with which to improve highway from Four Mile crossing north of county line.

**Superior, Wis.**—After discussion of advisability of paving additional streets in Eighth ward, members of South End Commercial Club have voted to circulate petitions asking city commission to order improvement of 58th St. and Central Ave. It is proposed to pave 58th St. from Northern Pacific tracks to John Ave. Central Ave. would be paved from Northern Pacific tracks to the Soo Line station.

**Superior, Wis.**—Sealed or open bids on \$33,000 worth of general street improvement bonds to be issued by city of Superior will be received Nov. 15.

**Ottawa, Can.**—City is considering purchase of vacuum street cleaners and automobile-pressure flushers. Matter should be addressed to City Engineer, Ottawa.

#### CONTRACTS AWARDED

**Conway, Ark.**—To Halter McCulloch, city, contract for street improvements in District No. A, calling for 13,262 sq. yds. 5-in. concrete pavement at 90c. per yd. and 3,000 cu. yds. of earth excavation at 30c. per cu. yd. T. F. Connelly will construct 9,500 sq. yds. of 5-in. concrete pavement at 90c. per yd. in District No. 5. Contract also calls for 2,500 cu. yds. of earth excavation at 30c. per yd.

**California.**—Following are lowest bids received Oct. 18 by State Highway Commission, Sacramento, for State road work: Sonoma County, Div. 4, Route 8, Section A—Lowest bidder, Bates, Borland & Ayer, Oakland, as follows: 43,500 cu. yds. excavation (ordinary) without classification, 38 cts.; 14 M ft. Oregon pine lumber in place, \$32; 19 M ft. Redwood lumber in place, \$40; 266 lin. ft. 12-in. corrugated metal pipe, 50 cts.; 120 lin. ft. 15-in. corrugated metal pipe, 50 cts.; 194 lin. ft. 18-in. corrugated metal pipe, 60 cts.; 442 lin. ft. 24-in. corrugated metal pipe, 75 cts.; 264 lin. ft. 30-in. corrugated metal pipe, 75 cts.; 1,200 lin. ft. 4-in. tile drain, 10 cts.; 185 cu. yds. cement concrete, class "B" culverts and monuments, \$10; 2,400 lin. ft. property fences, moving and resetting, 4 cts.; 4,200 lin. ft. new property fences (board and wire), 4 cts.; 32,400 lin. ft. new property fences (woven wire), 4 cts.; 76 monuments, hauling and setting, \$1; total, \$22,183. Next 3 lowest bids: P. H. Hoare, Oakland, \$24,869; Moffet & Mead, San Francisco, \$25,409; J. A. Marshall, Berkeley, \$26,242. Placer County, Div. 3, Route 3, Section B—Only bidder, Bates, Borland & Ayer, Oakland, as follows: 45,000 cu. yds. excavation (ordinary), without classification, 65 cts.; 480 lin. ft. 12-in. corrugated metal pipe, 50 cts.; 330 lin. ft. 18-in. corrugated metal pipe, 50 cts.; 120 lin. ft. 24-in. corrugated metal pipe, 75 cts.; 235 cu. yds. cement concrete, class "B" culverts and monuments, \$10; 8,760 cu. yds. cement concrete, class "B" pavement, \$3.50; 3,120 lin. ft. guard rail, 35 cts.; \$3 monuments, each \$1; total, \$63,935. Mariposa County, Div. 6, Route 18, Section A—Lowest bidder, George K. Daley, San Diego, as follows: 53,000 cu. yds. excavation (ordinary), 38 cts.; 1,700 cu. yds. excavation (solid rock), \$1.50; 1,024 lin. ft. 12-in. corrugated metal pipe, 80 cts.; 156 lin. ft. 18-in. corrugated metal pipe, 90 cts.; 406 lin. ft. 24-in. corrugated metal pipe, \$1; 310 lin. ft. 30-in. corrugated metal pipe, \$1.25; 810 cu. yds. cement concrete, class "B" culverts and monuments, \$20; 2,324 lin. ft. guard rail, 75 cts.; 290 monuments, hauling and setting, \$1.25; total, \$42,749. Next 3 lowest bids: Toohy & Johnson, Dunsmuir, \$45,285; G. W. Conners, Eureka, \$46,860; W. J. Schmidt, Berkeley, \$47,522. Placer County, Div. 3, Route 3, Section B—Lowest bidder, C. H. & A. W. Gorrill, San Francisco, as follows: 45,000 cu. yds. excavation (ordinary) without classification, 39 cts.; 480 lin. ft. 12-in. corrugated metal pipe, 55 cts.; 330 lin. ft. 18-in. corrugated metal pipe, 60 cts.; 120 lin. ft. 24-in. corrugated metal pipe, 70 cts.; 235 cu. yd. cement concrete, class "B" culverts and monuments, \$9; 8,760 cu. yds. cement and concrete, class "B" pavement, \$2.98; 3,120 lin. ft. guard rail,



30 cts.; 88 monuments, hauling and setting, \$1; total, \$47,340. Next 3 lowest bids: Twohy Brothers Co., San Francisco, \$49,114; Whitlock & Gorill, Durham, \$50,582; Taylor & Bertiner, Willows, \$53,002. Sonoma County, Div. 4, Route 8, Section A—Lowest bidder, Spring Construction Co., Berkeley: 43,500 cu. yds. excavation (ordinary) without classification, 36½ cts.; 14 M ft. Oregon pine, \$42.50; 19 M ft. redwood, \$48.20; 266 lin. ft. 12-in. corrugated metal pipe, 53 cts.; 120 lin. ft. 15-in. corrugated metal pipe, 65 cts.; 194 lin. ft. 18-in. corrugated metal pipe, 75 cts.; 442 lin. ft. 24-in. corrugated metal pipe, \$1.10; 264 lin. ft. 30-in. corrugated metal pipe, \$1.30; 1,200 lin. ft. 4-in. tile drain, 30 cts.; 185 cu. yds. cement concrete, class "B" culverts and monuments, \$10; 2,400 lin. ft. property fences, moving and resetting, 10 cts.; 4,200 lin. ft. new property fences, board and wire, 5 cts.; 32,400 lin. ft. new property fences, woven wire, 4½ cts.; 76 monuments, each \$2; total, \$22,852. Next two lowest bids: O'Brien Brothers, Martinez, Cal., \$28,205; W. E. Hunt & Sons, Alameda, Cal., \$30,903.

**Merced, Cal.**—Lowest bid received by State Highway Commission this week for construction of 10-mile Cathay unit of Merced-Mariposa highway lateral was \$42,748.60, submitted by G. K. Daley, of San Diego, against State's estimate of \$47,178.61, with material to extent of \$6,417.50 to be furnished by State. Work is to proceed at once. A hot mixer has been purchased by the city street department for repairing the city's miles of paved streets to keep them up to standard.

**Washington, D. C.**—Following contracts have been awarded by Commissioners on bids received Oct. 19 for paving: Cranford Paving Co., Washington, 6,000 sq. yds. of sheet asphalt, \$1.57 per sq. yd.; Washington Asphalt Block & Tile Co., Washington, 9,600 sq. yds. asphalt block, \$1.52 per sq. yd. The Atlantic Bitulithic Co., Richmond, Va., bid \$1.60 per sq. yd. for bitulithic, and the Warner-Quinlan Asphalt Co., Syracuse, N. Y., \$1.59 and \$1.57 per sq. yd. for sheet asphalt. Following are 3 bids opened Oct. 15 for constructing 2.12 miles of gravel road in Fairfax County: Rouze & Slocombe, Potomac, Va., \$9,755; Earl & Johnston, Arlington, Va., \$10,322; Cowherd & Cowherd, of Richmond, at \$12,218. Contract was awarded to Rouze & Slocombe.

**Boise, Ida.**—To Whittet and Relyea, of New Plymouth, Ida., contract by State Highway Department for grading and placing culvert pipes on seven miles of road in Washington County for \$6,000.

**Pocatello, Ida.**—J. J. Carroll of Boise has been awarded contract for constructing 58 miles of state highway from Power county line clear through Cassia county to the Twin Falls county line. The price was fixed at \$47,000.

**Alton, Ill.**—For paving Summit, Mill and West 4th St., awarded to M. Burke, Alton, at \$17,493.

**South Bend, Ind.**—Contract for paving Leeper Ave. from Howard to Angellia Ave. has been awarded by board of works to Harry N. Barnes. Contract price is \$12,437. Contract calls for bituminous filled macadam on hill from Howard Ave. to near Niles Ave., a space of 1,000 ft., and for glutrin bound macadam from top of hill where bituminous macadam will end to Angellia Ave.

**South Bend, Ind.**—Contract for construction of 42 road signs to be erected at intersection of principal highways of county has been awarded to George Cutter Co., of this city. Sign posts will cost \$400. County Council has appropriated \$700 for this purpose.

**Winamac, Ind.**—By Commissioners of Pulaski County, to John Blair, at \$8,265, for Reinhold gravel road in Tippecanoe township. C. E. Paul is engineer.

**Independence, Kan.**—For paving contract was awarded from bids received Oct. 21 as follows: To Green & Cullen, Independence, 7,136 lin. ft. concrete curb and gutter, 50 cts.; 1,653 lin. ft. 6x14-in. concrete curb, 25 cts.; 13,661 sq. yds. fiber block paving, \$1.31; 310 sq. yds. old paving, taken up and relaid, 60 cts.; 5,919 cu. yds. earth excavation, 35 cts.; 384 lin. ft. head curb, 25 cts.; for catch basins, each \$20; 140 lin. ft. 24-in. sewer, \$1.75; total, \$24,768. Other bidder, A. E. Sherwood, \$24,956; also contract to Green & Cullen, as follows: 2,820 lin. ft. curb and gutter, 50 cts.; 113 lin. ft. concrete curb, 6x14-in., 25 cts.; 4,827 sq. yds. fiber block pavement on 6-in. macadam base, \$1.31; 2,394 cu. yds. earth excavation, 35

cts.; 220 lin. ft. head curb, 25 cts.; total, \$8,654. George E. Weaver is city engineer.

**Paducah, Ky.**—Cresap Bros. of Humbolt, Tenn., were awarded contract Oct. 22 for graveling Hinkleville road from Little Union school house to Lamont, a distance of two and a half miles. Their bid was \$7,243.87; Yancey & Johnson, Paducah, \$9,461.55; Bradshaw Bros., Paducah, \$9,461.55; Durrett Construction Co., Louisville, \$10,545.05; A. A. Smith, Mt. Pleasant, Tenn., \$11,301.49.

**Boston, Mass.**—The Terini Construction Co., of Ashland, contract by State Highway Commission, for construction of about 22,300 ft. of highway through town of Grafton, at \$48,104.

**Hammonton, N. J.**—By town council, to Edw. L. Bader, Atlantic City, N. J., for 483 lin. ft. cement gutters and 3,345.21 sq. yds. reinforced concrete pavement on Bellevue Ave., between P. R. R. and Third St.

**Jersey City, N. J.**—For road improvement by Bd. Chosen Freeholders as follows: Paterson Plank Road from Secaucus Hill to Hackensack River bridge, to Nolan & Horning Cont. Co., West Hoboken, at \$44,003, and for Passaic Ave., in Kearney, to Northern Constr. Co., Newark, at \$39,516.

**Long Branch, N. J.**—By Board of Chosen Freeholders, two road contracts, one going to W. A. Coventry, of Ocean Grove, and the other to Owen Melee, of Long Branch. The first contract was for concrete road and sidewalk at Throckmorton's Gully, Red Bank. Mr. Coventry's bid was \$1,695. The other bidders were: J. W. Butcher, Asbury Park, \$1,745; Louis J. Selling, Red Bank, \$2,294; O. J. Melee, of Long Branch, \$2,070. The second contract was for a concrete culvert at Mechanicsville, near Keyport. Mr. Melee, the low bidder, wanted \$1,675 for the job. The other bidders were: H. M. Van Dorn and J. Grover Curtis, Keyport, \$1,875; E. P. Bennett, Belford, \$1,887.50; J. W. Butcher, Asbury Park, \$2,181.80; F. W. Schweirs, Jr., Co., New York, \$2,174.11; L. J. Selling, Red Bank, \$2,016; Thompson, Matthews Co., Red Bank, \$2,189.

**New Brunswick, N. J.**—Contractor Thomas F. Dunigan, of Woodbridge, was awarded contract Oct. 25 by Board of Freeholders for extraordinary repairs to Amboy Ave., in Perth Amboy, running from city line to Spa Springs to city line at Myrtle Ave. Proposals on this work were received a week ago, with Mr. Dunigan submitting lowest estimate, \$29,148.07.

**North Arlington, N. J.**—Bids were received Oct. 25 by North Arlington Borough Council for laying cement sidewalks on both sides of Sunset Ave., from Kearney Ave. to River road. P. & P. Jannarone of Belleville were lowest bidders, their price being 55c. per lin. ft. As their estimate was not accompanied by a certified check, which was required by the notice, bid was rejected. The next lowest bidders, Porter & Freund, of Lyndhurst, bid 55 4-10c. per foot, and they were awarded the contract.

**Albany, N. Y.**—George J. Curren of Middletown, Conn., was the lowest bidder for construction of 3.41 miles stretch of Dunnsville-Altamont road when proposals for the contract were opened by Commissioner Edwin Duffey of highway department Oct. 26. His bid was \$27,855. There were four other bidders, including A. N. Hoyt of this city. In other contracts bid for, these Albany contracting firms were lowest bidders: Kennedy Construction Co., for 5.25 miles, Arkport-Van Scoters Corners, Allegany county, at \$50,881; John H. Gordon, for 6.06 miles, Fleming-Scipio, Cayuga County, at \$52,010; Langan Construction Co., for 4.30 miles, part 1, Transit, Erie County at \$70,040; James Anderson, for 7.69 miles, Caledonia-Mt. Morris, Livingston County, at \$63,063, and Langan Construction Co., for 70-100ths of a mile, Whitesboro-Carey Corners, Oneida County, at \$17,187. Contracts for nearby roads received these low bids: Schenectady-Duanesburg, 5.62 miles, George J. Curren, Middletown, Conn., at \$38,777; Claverack-Chatham part 1, 4.27 miles, Russo-Parker Construction Co., Hudson, at \$39,756, and part 2, 7.77 miles, Marks Kearney, Hudson, at \$62,186.

**New York City, N. Y.**—For regulating and repaving E. 18th St., from Broadway to 4th Ave., to W. J. Fitzgerald, 547 W. 54th St., New York, at \$5,412.

**New York, N. Y.**—Low bids received for improving Jerome Ave. from Boyd to Greenwood Ave., and South Ave. from

New York Ave. to Rockaway Turnpike were from William T. Maxwell and Peace Bros., and for furnishing and delivering 200,000 gals. of road oil from Warner-Quinlan Asphalt Co.

**New York, N. Y.**—For paving, awarded as follows: Powell Ave. from Tremont to Zerega Ave., to Burnside Contracting Co., at \$12,105; Walker Ave. from intersection of Westchester Ave. and former Main St. to easterly terminus of land acquired for West Farms Rd. to Eastern Blvd., to Anabel Construction Co., at \$76,333; Rosedale Ave. and Kingsbridge Terrace, to Municipal Asphalt Co., at \$5,124 and \$4,323 respectively.

**Rensselaer, N. Y.**—James J. Rigney of this city and M. F. Dollard of Albany were awarded contracts for \$42,243 worth of paving improvements by Board of Aldermen at special meeting Oct. 26. It is intention of Board to have work in operation this year. Contracts specify that work must be finished within 40 days after it has been started. Mr. Rigney's contracts call for paving of Riverside Ave. with shale vitrified brick for \$10,043 and paving of Second, Walker, Catherine, John, Fourth and Lawrence Sts. with vitrified shale block at \$21,919.50. Contractor Dollard will pave Lansing Pl. and First St. with vitrified shale block, Fowler Ave. with granite block and redress Third St. north of Catherine St. for \$10,820.50. The Crammond Construction Co. of Albany was also a bidder for the work.

**Schenectady, N. Y.**—The Union Paving Co. was low on paving of Michigan Ave. at \$23,687.30, and also for paving Forest Rd., at \$5,294.24. The Schenectady Contracting Co. will pave Palmer Ave. at \$2,427.40. The bids on Congress St. paving were put over until Saturday morning for a decision. Bruno Tripoly will place sidewalks on Harvard and Dean Sts. at \$1,117.88 and \$320, and D. Lewis will do the same work on the Market Pl. and Harvard St. for \$429 and \$525 respectively.

**Concord, N. C.**—More of streets of Concord are to be paved. Board of Aldermen has decided to pave three streets and sections of three others. This is in addition to paving work now under way on West Depot St. from depot to St. Cloud Hotel. Total cost of work is estimated at \$100,000. R. M. Hudson, of Atlanta, has contract for paving West Depot and North Union Sts. to Locke Mill. The contract for paving the other streets has not been awarded.

**Minot, N. D.**—To Minot Construction Co., city, for grading and graveling 3½ miles of road, at \$33,000.

**Cincinnati, O.**—For improving Wayne Ave. from Stewart Ave. to Martin Rd., Springfield Township, awarded to Paul Menzer, Cincinnati, at \$6,770.

**Waubay, S. D.**—To E. R. Crackett & Co. for building road west of Waubay to cost \$5,000.

**Norfolk, Va.**—Bids on 3-mile Ocean Park Highway, which is to be constructed of sand and clay, have been opened by board of supervisors of Princess Anne County, the contract being awarded to Vesta Construction Co., of Terrace Forak, Va., for \$4,195.17. Other bids were as follows: Allegheny Concrete Construction Co., \$5,003.10; G. P. Clay, of Richmond, \$5,259; C. H. Fentress, of Princess Anne, \$4,691.

**Moundsville, W. Va.**—City has let contract to Stringer & Stringer, Wheeling, W. Va., to construct 1500 lin. ft. cement curb and 5000 sq. yds. street paving; Alex Purdy is city engineer.

**Wheeling, W. Va.**—City Engineer Alex Purdy has figured out bids for paving of Seventh St., between Western and Lafayette Aves., and has awarded contract to Stringer & Springer Co., they being lowest and best bidder. Suburban brick will be used with 6-in. gravel and concrete base. The paving is to be done at \$1.05 per sq. yd.

**Bremerton, Wash.**—To L. L. Kent for construction of concrete walks and permanent gutters on Burwell Ave., at \$6,356.

**Everett, Wash.**—To Ervig & Haugh, city, for improvement of Harrison Ave., at \$7,951.

**Olympia, Wash.**—To W. G. Mulligan Co., Spokane, at \$21,120, for 7 miles of highway from Colfax to Rosalia, Whitman County, and General Construction Co., Spokane, at \$13,243, low bidder for road on Inland Empire Highway in Walla Walla and Columbia Counties, between Waiteburg and Dayton.

**Seattle, Wash.**—For grading and curbing W. 65th St., to D. J. McLean at \$2,-

304.68; for paving alley, block 28, Capitol Hill Add., Div. No. 4, to Argenti & Co., \$1,453.40, and for paving 47th Ave. N. E., to Independent Asphalt Paving Co., at \$26,685.50.

**San Francisco, Cal.**—Installation of catch basins at intersection of Lower Terrace and Levant St. is recommended.

**Stockton, Cal.**—Plans and specifications have been adopted by city council for sewerage of Homestead, Kidd's addition, Mark's addition, the Vischer tract, Lane's addition, Sunset addition, county survey No. 3847, county survey No. 3227, part of Thomas F. Walsh addition and part of Jackson's addition, in accordance with resolution of intention No. 534, also certain lots fronting on north side of South St., as described in resolution. The city engineer's estimate for work is \$32,843.75.

**Springfield, Ill.**—As result of complaint from northwest section of city for extension of the Town Branch sewer, Commissioner J. Emil Smith, head of finance department, has said he would ask Council to undertake construction of disposal plant along with extension of sewer at total cost of \$75,000, to be paid for by special assessment.

**Elwood, Ind.**—A. D. Moffet, engineer, has submitted report estimating cost of sewer system in business section at \$14,000.

**Indianapolis, Ind.**—Board of public works has confirmed resolutions for the construction of a main sewer and two local sewers. Bids are to be received soon, and efforts will be made to have the sewers built during the winter. The main sewer is to be in Meridian St. and Madison Ave., with branches in one or two streets, and the estimated cost is \$10,800. One of the local sewers will be in State Ave., between Palmer St. and point 53 ft. south of Minnesota St. Estimated cost is \$1,000. Other local sewer is to be in alley north of 36th St., between Water road and Crescent St., with branches in first alley west of Northwestern Ave. and in Crescent St. Estimated cost is \$4,300.

## SEWERAGE

**Cherryvale, Kan.**—Plans and specifications are being prepared by Black & Veatch, Consulting Engineers, Kansas City, Mo., for vitrified pipe sewer extensions. F. C. Barber is City Clerk.

**Lexington, Ky.**—Ordinance has been adopted ordering construction of sanitary sewers on several streets in Forest Hill.

**Lexington, Ky.**—Ordinance has been adopted ordering construction of sanitary sewers on the following streets and portions of streets, to wit: W. 3d St., Hickory St., Whitney Ave., Ash St., Charles Ave., Oak St., Elm St., Michigan St. and Georgetown St., at cost of owners of lots and parcels of land abutting on said improvement.

**Haverhill, Mass.**—Construction of sewers on Commonwealth Ave. is being considered.

**Flint, Mich.**—Bids will be advertised for construction of sewers to be received by 3 p. m., Nov. 1, 1915.

**Greenville, Mich.**—Engineers Rumsey & Works, Grand Rapids, are preparing plans and specifications for new storm sewer.

**Bozeman, Mont.**—Following are two lowest bids received for 1,800 ft. 6-in. vitrified tile sewer: J. J. White, \$1.41; total, \$2,548.80 including manholes, Y's & T's, and E. Brandriff, at \$1.34, or total of \$2,424.20. C. C. Widener is City Engineer.

**Schenectady, N. Y.**—Council has ordered purchase of two meters for sewerage system.

**Albuquerque, N. M.**—James N. Gladding, city engineer, is preparing plans for pump for sewerage pumping station.

**Coshocton, O.**—City Engineer Fisher is ready to begin work making estimates and plans for elimination of now-famous Adams St. ditch.

**Mansfield, O.**—City Board of Control has received and opened eight bids for construction of trunk line sewer, with necessary laterals, in sewer district No. 1, bonds for payment of which were sold by City Auditor Johns to Mansfield Savings Bank Tuesday. Of the bids received Carl Weiss, Peru, Ind., was low with \$6,667.84, while P. W. Bresach, Waterville, O., was high, with \$9,291.16. No contract has yet been entered into. The work calls for the construction of 10 and 12-in. trunk sewers with laterals of 6 and 8 ins. The total number of feet is near 8,600. Bids received with the

amounts are: P. W. Bresach, Waterville, \$9,291.16; Shullo Bros., Rittman, \$7,702.17; Joe Perry, Canton, \$9,259.05; Long & Ostrander, city, \$7,051.06; D. Nickels, Canton, \$9,279.19; Carl Weiss, Peru, Ind., \$6,667.84; C. L. Wright, Mt. Vernon, \$7,666.27. A decision as to which bid will be the best for city to receive will be decided at once. City Engineer W. J. Hazeltine was authorized to check all bids and report outcome as soon as possible.

**Mansfield, O.**—Bonds for improvement of sewer district No. 1, which is to be improved by construction of trunk line sewer, have been sold by City Auditor Hoyt J. Johns to Mansfield Savings Bank on their bid of \$130. The bonds total \$12,100. The big improvement in sewer district No. 1 calls for a trunk line in 10 and 12-in. material with laterals of 6 and 8 ins.

**Middletown, O.**—The Industrial Commission of Ohio has purchased \$15,000 worth of sewer bonds.

**Springfield, O.**—Ordinance has been passed determining to proceed with the construction of sanitary sewer in Harrison St. from Clairmont Ave. to Buxton Ave., with connecting sewers in Raffensperger Ave. from Harrison St. to first alley south of High St.; and in Buxton Ave. from Harrison St. to the first alley south of High St., and in Virginia Ave. from Buxton Ave. to Raffensperger Ave.

**Vermilion, O.**—Bids will be received at office of Clerk of the village of Vermilion until 12 o'clock noon, on Nov. 16, for purchase of bonds for the village of Vermilion, in aggregate sum of \$17,500, comprising 20 bonds, for construction of sewerage disposal plant and sewer system for village of Vermilion, in accordance with general plans for sewerage now on file in office of Village Clerk. Also bonds in sum of \$22,000 for construction of sewerage disposal plant, trunk sewer, portion of lateral sewers lying within intersections, and also 1-50 of cost of that portion of sewers abutting upon property assessable. Lewis Blattner is Clerk.

**Portland, Ore.**—All bids for construction of Water and Mill Sts. sewers have been rejected by council and bids will be readvertised.

**Belton, Tex.**—Election will be held Nov. 23 to vote on question of issuing funding sewer bonds in sum of \$40,000.

**Laurens, Tex.**—Plans and specifications for sewer system are being prepared to cost \$15,000. Contract will be let about Jan. 1, 1916. H. E. Rawlins is City Secretary.

**Sherman, Tex.**—City Commission has passed resolution to submit bond issue to voters asking for \$150,000 to be used for extension of the sewerage system, improvement of the streets, the water plant and the light plant. The date of the election will be set at next regular meeting.

**Uvalde, Tex.**—N. Werenskiold, consulting engineer, box 511, Dallas, is preparing plans for sewerage disposal plant.

**Ceredo, W. Va.**—City will vote Nov. 6 on \$55,000 bonds to construct sewer system.

**Kenova, W. Va.**—City will vote Nov. 6 on \$55,000 bonds to construct sewer system: Oliver & Maupin, engineers, Huntington, W. Va., who prepared estimates and plans, proposes to build trunk sewer through city ranging in diameter from 30 to 54 in.; also 18-in. laterals to connect with trunk sewer.

## CONTRACTS AWARDED

**Visalia, Cal.**—For constructing sewer extensions to Michael Murphy, Berkeley, at \$40,500.

**Leviston, Ida.**—To J. W. Hill & Co., 1709 Main Ave., Spokane, Wash., contract to construct sewer in District No. 7, for \$1,161.

**Indianapolis, Ind.**—For sewers, to American Construction Co., at \$26,499, for sewer in Michigan St., and to George Schauer & Son, at \$14,257, for sewer in Germania Ave.

**Muncie, Ind.**—Contracts for construction of sewers in Main St. from Lincoln St. to within 15 ft. of Macedonia Ave., and in Seymour St. from Vine St. to within 20 ft. of Hackley St., have been awarded to William M. Birch Co. by the members of special committee of the Council.

**Elliott, Ia.**—To Wm. S. Doll, of Omaha, Neb., at \$5,744, for construction of sanitary sewer. Theodore S. DeLay are consulting engineers, Creston, Ia.

**Pella, Ia.**—For constructing sewers to

Henry Rees, of Quincy, at \$9,217. A. C. Kuyper is City Clerk.

**Sioux City, Ia.**—To F. T. Leeder for construction of Morningside sewer, 16-, 275 ft. at about \$11,000; work includes 48 manholes.

**Garfield, N. J.**—Bids for extension of sanitary sewer on Irving Pl., have been tabulated, and work awarded to Union Building and Construction Co., who bid \$2,049.36. De Napoli and Torelli were next lowest bidders, \$2,261.88.

**Glen Gardner, N. J.**—By Board of Managers of New Jersey Sanatorium for Tuberculosis Diseases, to New York Sewage Disposal Co., New York City, at \$13,727, for addition to sewage disposal plant at Glen Gardner.

**Brooklyn, N. Y.**—To Frank Merindino, 556A 17th St., Brooklyn, low bidder at 90 per cent. for sewer in Kings Highway from E. 16th St. to E. 17th St.

**New York City, N. Y.**—To W. J. Fitzgerald, 547 W. 45th St., New York, at \$10,492, for receiving basins Nos. 1, 2, 3 and 4.

**New York, N. Y.**—Contracts for sewers in various streets as follows: In Hunters Point Ave., to J. L. Sigretto Co., 20 Curtis Ave., Richmond Hill, at \$57,720; Kimball Ave., to Green Contracting Co., 292 5th Ave., Brooklyn, at \$22,847; Herkimer Ave., to James H. Johnson, Beekman and Cliff St., New York, at \$15,755; Smart Ave., to Green Contracting Co., at \$5,810; Willard Ave., to J. L. Sigretto Co., at \$8,787.

**Schenectady, N. Y.**—John Allen has been awarded contract for sewers on several streets at \$3,171.50 by board of contract and supply.

**Grand Forks, N. D.**—For sewer construction for lateral sewer No. 16 in district No. 5, in alley between Budge and Dike Aves., to Grand Forks Concrete Co., at following bid: 114 ft. 8-in. C. B. pipe at 50 cts.; 726 ft. 15-in. V. pipe, \$1.05 per ft.; 345 ft. 12-in. V. pipe, 85 cts. per ft.; 3 brick manholes, \$48 each, and 6 catch basins, \$45 each. Also to same firm for lateral No. 17, in district No. 5, in Sixth St., at following bid: 4 ft. 8-in. V. P. sewer at 60 cts. per ft.; 460 ft. 12-in. V. P. sewer at \$1 per ft.; 1 manhole, \$50, and 1 catch basin, \$45.

**Cheviot, O.**—For constructing trunk sewer to J. Ruebel Construction Co. Albert J. Rensing is Village Clerk.

**Dayton, O.**—For constructing sanitary sewers in District No. 6 to Worth & Blessing, Dayton, at \$30,830.

**Forest Grove, Ore.**—To E. W. Elliott, Portland, Ore., for sewer system, at \$58,488, clay and concrete pipe.

**Cheltenham, Pa.**—To Green-Starr Engineering Co., Perry Bldg., Philadelphia, contract for installation of Starr System of sewage disposal for Rodman Wanamaker at Cheltenham Hills.

**Williamsport, Pa.**—To Jos. McCadden & Son, 55 Maple Ave., contract for 1,000 ft. terra cotta sewers on Jefferson and Neppburn Sts.

**Seattle, Wash.**—For constructing sewers in E. 69th St., to Argenti & Co. at \$803.23.

**Appleton, Wis.**—For construction of segmental block sewer to Wengenborg & Blake, Appleton, Wis., at \$29,915.

**Plymouth, Wis.**—To Peter Borst of Port Washington contract to install local sewer system for \$7,500. Work will include two miles of sanitary sewers, consisting of 12, 10, 8 and 6-in. pipe.

**Racine, Wis.**—To Patrick Gavahan, city, for sewers in Carlisle Ave., at \$1.40 for 18-in., \$1.28 for 15-in., \$1.10 for 12-in., and \$40 for manholes and catch basins.

## WATER SUPPLY

**Pasadena, Cal.**—Resolution has been adopted for laying of water main on Glen Ave.

**Pasadena, Cal.**—Resolution has been adopted for laying of water main on Evelyn Place.

**Washington, D. C.**—An American consular officer in Central America reports that Government desires to receive bids for water pipes and accessories. A copy of consul's report containing specifications, etc., may be examined at Bureau or its branch office. No. 18,973, Bureau of Manufactures.

**Michigan City, Ind.**—Ordinance providing for bond issue of \$75,000 for funds with which to enlarge and improve the water works plant came up on second reading Oct. 26, before Common Council, and on motion of Mr. Bennett rules providing that ordinance lie over to another meeting for the third reading were suspended, and measure was passed by unanimous vote.



**Carroll, Ia.**—Petition is in circulation asking that election be called to vote on question of issuing water works extension bonds in sum of \$12,000.

**Riverside, Ia.**—Bids will be received by town up to 8 p. m., Nov. 5, for a deep well pump and gasoline engine. Chas. P. Chase, Consulting Engineer, Clinton, Ia. H. McClelland, Town Clerk.

**Louisville, Ky.**—Twenty bids on proposed filtration plant of New Albany Water Co. are in hands of officials of Interstate Public Service Co. Bids include proposals on the building, the pumps and filtration apparatus. Chester P. Wilson, of Indianapolis, president of Interstate Public Service Co., of which water company at New Albany is a part, was in New Albany to go over bids with J. O. Endris, Jr., manager of New Albany water works. It is said that proposals on different departments of filtration plant are reasonable, and it is believed that contracts will be awarded on bids that have been received. It is expected that contracts will be awarded within few days, and that work on filtration plant will be begun in short time. Estimated cost of plant is \$80,000. When filtration plant is completed water rental rates in New Albany will be advanced 10 per cent.

**Medway, Mass.**—Town meeting will be held to see if town will vote to extend water system from end of present main on Holliston St. in northerly direction to Partridge's Corner, so-called, thence to Main St. in westerly direction, to point near Pond St., to connect with water mains already laid on said Main St., also for paving necessary expenses of said extension.

**Albion, Mich.**—Warring factions of the Common Council of Albion have finally called truce and decided to hold special election for bonding of city for \$10,000 for construction of a steam operated water pumping plant, Dec. 14.

**Hancock, Mich.**—Plans prepared by city engineer for water mains in Lake St. and Hancock Ave. have been accepted by city council.

**Saginaw, Mich.**—Council has taken necessary legal action in form of adoption of resolutions whereby qualified voters of city will ballot Friday, Dec. 3, on bond issue of \$750,000 for consolidated pumping station and filtration and softening plant and referendum to be held at same time on choice of two sites, present east side water works location and so-called Rust park site, near corner of Court St. and South Washington Ave.

**Kallispell, Mont.**—City Council of Polson has practically closed deal with Northern Idaho and Montana Power Co. for purchase of city water works system. Price to be paid is \$10,000, and company agrees to put system in good repair so as to withstand steady pressure. In addition to this company is to pump water free of charge for period of six months.

**Newark, N. J.**—Bids for water supply and fire system for almshouse at Ivy Hill have been received by public buildings committee of common council. All exceeded the \$4,500 available for this work. James F. Kelly, of 126 S. 14th St., was low among three bidders. His estimate was \$4,905. The other bids were: Salmon Heating & Contracting Co., Inc., 259 New York Ave., \$5,321; Robert Dougherty, 168 Ridge St., \$6,555.90.

**Trenton, N. J.**—Consulting with Assistant Attorney General Boggs, the State Water Supply Commission has completed draft of contract to be submitted to municipalities which have announced their intention of using Wanaque as source of potable supply.

**Ballston, Spa, N. Y.**—George D. Raymond, treasurer of village, is advertising for bids for sale of \$4,000 new substituted water bonds of village of Ballston Spa.

**Middletown, O.**—The Industrial Commission of Ohio has purchased \$25,000 worth of water works bonds.

**Springfield, O.**—Requests for specifications and estimates on complete water works department call for new line extensions of approximately 20,000 feet or nearly four miles of piping constituting one of largest single branch extensions in the city. Superintendent Cotter of water works department has completed rough plans for supply system which will cover practically all of streets laid out in new residence district. Main extension will be 6 and 3-in. pipes joining the regular city mains at McCreigh Ave. north of cemetery.

**Warren, O.**—Chester & Fleming, hydraulic engineers, Pittsburgh, Pa., have

been retained to prepare plans for improvements to filtration plant.

**Zanesville, O.**—City council is considering relining and enlarging two reservoirs to cost \$25,000.

**Clinton, Okla.**—Definite steps have been taken by City of Clinton to solve the water problem. The Commercial Club have urged the City Council to take action and as result they Council, at a meeting Oct. 25, after receiving propositions from several engineering concerns and a careful investigation of consulting engineers, accepted the proposal of the Benham Engineering Co., of Oklahoma City, to act as consulting engineers to make all the necessary investigations, draw plans and specifications and supervise the work of construction. Both the propositions of obtaining water from impounding reservoir and from wells will be investigated by the engineers. It is estimated that funds in amount of \$100,000 will be voted.

**Tulsa, Okla.**—November 9, will be date for holding of special election to vote upon Shell Creek reservoir bond issue. The question that will be submitted to qualified voters of city is whether or not city shall issue bonds to sum of \$600,000 for the construction of an impounding storage reservoir system at mouth of Shell Creek and for other extensions and improvement necessary on system to provide for furnishing Tulsa with water from water shed of Shell Creek in Tulsa and Osage counties.

**San Angelo, Tex.**—See "Lighting and Power."

**Sherman, Tex.**—See "Sewerage."

**Temple, Tex.**—An electrical pump which will serve purposes of standpipe may be installed at city waterworks station. Matter is now under advisement in hands of special committee.

**Montpelier, Vt.**—City council has decided to lay 6-in. water main from Cummings street to poor farm property and several hydrants will be installed along the route.

**Wheeling, W. Va.**—Work on extension of mains by city of Wheeling in Fulton, for purpose of furnishing that suburb with more water, will be started immediately.

**Kent, Wash.**—City Council has authorized issuance of 8 per cent. water system bonds in sum of \$3,814.36.

**Niagara Falls, Ont., Can.**—Formation of water commission to look after affairs of Stamford water works will be recommended by Stamford Board of Trade.

#### CONTRACTS AWARDED.

**Orchard City, Colo.**—To Chas. J. Moynihan, contract to install water plant. Water will be secured by gravity from springs. Burns & McDonnell are Consulting Engineers, Kansas City, Mo.

**Poplar Grove, Ill.**—By Board of Village Trustees, for water system as follows: Mains, Ernest Ries, Woodstock, Ill., \$3,268.25. Machinery and tank, The Fairbanks-Morse Co., Beloit, Wis., \$1,400. Hugh M. Price is engineer, 120 Hartford Bldg., Chicago.

**Miller, Ind.**—For water system, as follows: General construction, to Shea & Co., pipe to National Tube Co., tank to Chicago Bridge & Iron Co. Estimated cost, \$14,000.

**Van Buren, Ind.**—To T. A. Hardman, of Olney, Ill., contract at \$9,400 for cast iron pipes, pumping equipment and installation of same.

**Spearville, Kan.**—To Bickel Construction Co., Kansas City, Mo., contract to install new water works system for approximately \$20,000. The Des Moines Bridge & Iron Co., Des Moines, Ia., was awarded contract to construct tank and tower for \$8,470.

**New Prague, Minn.**—To New Prague Foundry Co., for laying 1,000 ft. 24-in. 14-gauge galvanized corrugated iron pipe for natural water course, at \$2.83 per lin. ft.

**St. Paul, Minn.**—By council, to Fielding & Shepley, at \$600, for putting in place six long and three short water service connections on Warsaw St., from W. Seventh St. to Pleasant Ave.

**Vicksburg, Miss.**—For low lift pump to De Laval Pump Co., Trenton, N. J., at \$3,095.

**Vineland, N. J.**—Bids for supplying pipe for new water main to Kimble-Durand Glass Co.'s upper plant have been opened, and figures per net ton over both railroads were as follows: (a) Pennsylvania R. R.; (b) Central R. R.; Donaldson Iron Co., (a) \$28.28, (b)

\$27.10; John Fox & Co., (a) \$28.15, (b) \$26.80; Warren Foundry Co., (a) \$27.40, (b) \$26.60; Standard Cast Iron Pipe & Foundry Co., (a) \$26.66, (b) \$27.24; United States Iron Pipe & Foundry Co., (a) \$26.34; R. D. Wood & Co., (a) \$26.18, (b) \$26.40. R. W. Wood & Co. being low bidders, the contract was awarded to that concern.

**Williamsville, N. Y.**—By board of water commissioners, to C. A. Besch, 231 Leroy Ave., Buffalo, N. Y., at \$2,569, for excavating a trench having average depth of not less than 3½ ft. and of sufficient width for laying 4 and 6-in. cast iron water main.

**Lumberton, N. C.**—For installation of water works and electric light system, to Tucker & Laxton, of Charlotte, N. C., at \$21,300.

**Grand Forks, N. D.**—For laying of water main No. 77 on Viets Ave., from Lewis Blvd. to Conkling Ave., Riverside Park Addition, to Carroll Bros., at following bid: 8½ ft. 6-in. c.-l. pipe at \$1.05 per ft.; 3 ft. 6 in. c.-l. pipe at \$1.05 per ft.; one 6-in. gate valve, \$20 each, and Eddy hydrants, \$50 each.

**Cincinnati, O.**—To U. S. Cast Iron Pipe & Foundry Co., at \$34,807, for pipe and castings.

**East Liverpool, O.**—By Board of Control as follows: Stand pipe, to Memphis Steel Construction Co., at \$2,887; 150-ft. brick stack, to Heinicke Chimney Co., at \$2,515; filter equipment for 6,000,000-gal. mechanical filter, to Pittsburgh Filter Manufacturing Co., Pittsburgh, at \$44,324. Chester & Fleming, Pittsburgh, Pa., are engineers. Contract for 9 miles 10 to 20-in. pipe was awarded to J. I. Dicks, of Stockdale, Pa.

**Middletown, O.**—For furnishing city with pumps and valves for new water works system, to Darling Pump & Valve Co.

**South Bethlehem, Pa.**—Contract for material for water extension has been awarded to Donaldson Iron Co., Evans, Pa., and for labor, to R. E. Neumeier.

**Galveston, Tex.**—At special meeting of board of city commissioners it is expected action will be taken on committee's recommendation, that contract be awarded to Major & Seagraves for reconstructing submerged water main across Galveston bay, for \$13,411; also on recommendation that United States Cast Iron Pipe Co. be awarded contract upon its bid of \$26,440 for 30-in. pipe to be used in submerged main.

**West Vancouver, B. C.**—For installation of water system, to Cotton Co., Ltd., of Vancouver, at \$90,000. Contract calls for about 20 miles of mains, settling basins, and tank reservoir, with capacity of 230,000 gals.

**Lambeth, Ont.**—For water system, as follows: Contract A and B, to London Foundry Co., 369 Thames St., London; contract C and D, to Ewaller Engineering Co., Middlemarch; waterpipe, to Gartshore-Thomson Pipe Co., Stuart St., West Hamilton; elevated steam tank, Des Moines Bridge & Iron Co., Pittsburgh, Pa.; concrete reservoir, to E. W. Kelley, Lambeth.

#### LIGHTING AND POWER

**Berkeley, Cal.**—Commissioner of Public Works Fred T. Robson has announced that plans for amplifying lighting of city on district plan were nearing completion. By way of beginning, it is proposed to organize district in region bounded by Allston way, Ward St., Shattuck and Telegraph Aves. In this district assessment per foot front will be levied to defray expenses of installing single lamp electroliners. City will provide meters and pay only for current used.

**Cottonwood, Cal.**—Arrangements for lighting streets have been made.

**Columbus, Ga.**—The city council will engage consulting engineer to make investigations relative to construction of municipal electric light plant.

**Victor, Ida.**—Village Clerk M. H. Brinton will receive bids for 7 per cent. 20-year electric light bonds in sum of \$4,000.

**Peoria, Ill.**—Plans are being discussed for installation of ornamental street-lighting system on Jefferson Ave., from Hamilton St. to Camden Ave.

**Rock Falls, Ill.**—Special election will be held Tuesday, Nov. 16, at regular voting places in this city for purpose of voting "Yes" or "No" on the proposition: Shall bonds of city of Rock Falls to amount of \$5,500 be issued for purpose of paying a portion of the cost of constructing an electric light system for said city for purpose of supplying said city and its inhabitants with electric

light, as provided by ordinance of said city.

**Springfield, Ill.**—Specifications for installation of new type of nitrogen street lamp, to replace old direct current type, which will mean saving to city of \$10,000 a year, are being prepared by Commissioner Spaulding for presentation to Council. Two proposals will be made by Commissioner Spaulding. First contemplates wholesale change, involving 600 lamps and costing \$12,000, and the second will mean substitution of 150 lamps at cost of approximately \$2,500. In order to realize saving of \$10,000, Mr. Spaulding says, it will be necessary to adopt first proposal. A proportionate saving can be made by installing 150 of the new type of lamp and the consequent discarding of one engine at the old plant at 10th and Reynolds Sts.

**Fort Wayne, Ind.**—Board of Public Works has approved resolution for ornamental lighting system on Lincoln Ave. from Broadway to Indiana Ave. Hilgemann & Schaaf, promoters of Harrison Hill, will install ornamental lighting system on Harrison Boulevard. The system, after completion, will be turned over to the city.

**Kanawha, Ia.**—At special election held here town voted \$13,000 bonds for electric lighting purposes, vote being 136 for and 15 against.

**Chapman, Kan.**—Election has resulted in favor of issuing electric light system bonds in sum of \$8,000.

**Louisville, Ky.**—Members of Lyndon Country Club are making energetic propaganda for establishment of electric lighting plant in little suburb.

**Palmer, Mass.**—Plans are being discussed for installation of ornamental lamps on Main St. Several posts will be erected for demonstration purposes.

**Jefferson City, Mo.**—Council has fixed Nov. 16 as day when qualified voters of this city will either ratify or reject proposed light contract.

**Bartley, Neb.**—Election has resulted by vote of 41 to 19 in favor of issuing electric light system bonds in sum of \$2,000.

**Omaha, Neb.**—A practical and ornamental system of street electric lighting for Field Club district has been agreed upon by city, county and property owners concerned. At county board's regular meeting plan was accepted. Property owners will install underground conduits and ornamental posts and fixtures, county will pay for that part of the project abutting its property and city will maintain the system. Streets concerned in plan are South 36th, from Pine to Pacific Sts., and Pacific from 36th to 38th Sts.

**Williston, N. D.**—Installation of ornamental street lighting system is said to be under consideration.

**Mason, Tenn.**—Nearly \$3,000 has been subscribed by business men of Mason to install electric light plant. They expect to put system in operation right away. This was contemplated a year ago but failed to materialize.

**Edgewood, Tex.**—Construction of electric light system is under consideration.

**San Angelo, Tex.**—E. A. Pitkin, president, and W. C. Hart, treasurer of Interstate Electric Co., are here from Boston to go over plans submitted some time ago for extensive improvements to the light and water systems of San Angelo. It is proposed to spend at least \$50,000 on improvements within next several months.

**Sherman, Tex.**—See "Sewerage."

**Tacoma, Wash.**—Bids for \$10,000 worth of street and commercial electric lamps were opened Oct. 22 by city light and water department, six regular bids being received. Contracts will be awarded later. The bidders are: Electric Construction Co., Home Electric Co., Electric Service Co., Bowie & Love, Nickerson-MacFarland Machinery Co., all of Tacoma, and Pacific Lamp Co. of Seattle. The bid of M. Sellers & Co. of Seattle was rejected because no certified check was sent, and offer of Mullins Electric Co. was received after time set.

**Janesville, Wis.**—Installation of ornamental street lighting system is being considered by city council.

**Galt, Ont.**—City Council is considering installation of ornamental street-lighting system, to cost about \$6,860.

#### CONTRACTS AWARDED.

**Phoenix, Ariz.**—Bids were opened Oct. 18 by City Manager Robert A. Craig for proposed new ornamental street light-

ing standards. G. H. Willisroft bid \$22.75 each for the standards, and will probably be awarded contract.

**Pasadena, Cal.**—For construction and installation of ornamental lighting posts and appurtenances on Mentor Court, to F. O. Enstrum Co., for the sum of \$247.

**Toccoa, Ga.**—For electric light plant, as follows: Dam, power house and flue lines, to J. G. Phillips, \$9,565.90. Transmission lines and sub-stations, to Walker Electric & Plumbing Co., \$15,185.

**Attica, Kans.**—To Bickel Construction Co., Interstate Bldg., Kansas City, Mo., contract at \$29,890, for light and water plant at Attica. E. T. Archer & Co. are engineers, 512 New England Bldg., Kansas City, Mo.

**Westboro, Mass.**—Citizens have voted to authorize Selectmen to enter into contract with Westboro Gas & Electric Co. for lighting town for five years.

**Great Falls, Mont.**—To Electric Supply Shop, for installation of special lighting system on 2d Ave., N., at \$5,451, for square system, and \$5,898 for staggered system.

**Seattle, Wash.**—Bids have been opened for electric fixtures for the Juvenile Detention Home and contract awarded to Cascade Electric Fixture Co. at \$265.55.

**Milwaukee, Wis.**—To Longstadt-Meyer Construction & Supply Co., of Appleton, contract to install lighting material in city's demonstration street electric lighting circuit on west side, for \$12,490.

#### FIRE EQUIPMENT

**San Jose, Cal.**—Tractors will shortly be purchased to replace fire horses.

**Wilmington, Del.**—Having received but one bid for installing and connecting underground cable for fire and police telegraph system, Police Commissioners have again advertised for bids for work. New bids are to be received until 2 o'clock Tuesday, Nov. 2.

**Wilmington, Del.**—Members of finance committee of city council and police commissioners held conference Oct. 26 with representatives of Gamewell Fire Alarm Co. relative to installing of new Gamewell system in new city buildings. Following the session it was decided to refer matter to council as committee of the whole. It is understood that cost of new equipment for police reporting room will cost more than \$5,000. This, in addition to cost of installing underground system in place of overhead wires now in use.

**Miami Beach, Fla.**—Council has ordered purchase of chemical engine which, if satisfactory, will be followed by two or three others.

**Plaquemine, La.**—City is considering purchase of motor truck and 500 ft. of hose and installation of new alarm system. L. B. LeBlanc is fire chief and city clerk.

**Fall River, Mass.**—According to statement made by Board of Fire Commissioners, awarding of contracts for motorizing fire department will not take place until some time next week, and in meantime commission expects further demonstration of merits of apparatus on which bids have already been submitted.

**Albert Lea, Minn.**—Bids will be asked for 1,000 feet of hose. Address City Clerk.

**Joplin, Mo.**—Upon motion of Mayor McIndoe all bids that had been received on 1,000 ft. of 3-in. fire hose have been rejected.

**St. Joseph, Mo.**—Ordinance has been passed appropriating \$2,500 from Fire Expense Department of general fund for purpose of buying new hose.

**Edgewater, N. J.**—Borough Clerk Peter F. O'Brien is asking for sealed bids until Nov. 16 at 8 p. m., for 5 per cent, semi-annual fire coupon or registered bonds in sum of \$40,000.

**Spring Lake, N. J.**—Bids for new triple combination auto fire engine for Goodwill Engine Co. of Spring Lake were received at a special meeting of the Spring Lake council Oct. 25, but no award was made, bids being turned over to fire committee for compilation and investigation. The American-La France Co. had bids in ranging from \$8,000 to \$10,000. The Martin Carriage Works of York, Pa., submitted the lowest bid, \$7,500. The Thomas Automatic Engine Co. of Columbus, O., bid \$8,000. Other bids were received from the Seagrave Co. of Baltimore, James Boyd & Bro. of Philadelphia and the Ahrens-Fox Co. of Cincinnati.

**Lima, O.**—No contract at this time will be awarded by Safety Director Good-year for motorized fire apparatus, and it

may be that letting of contract will be postponed until indefinite date. By unanimous action board of sinking fund trustees, at their regular monthly meeting, decided not to consider buying \$15,000 worth of bonds, sale of which is necessary before contract can be let.

**Springfield, O.**—Ordinance authorizing city manager to call for bids on new fire equipment to include one new motor-driven hose and chemical wagon, one second-hand motor wagon and motor chassis for old chemical wagons, total price to be paid not to exceed \$9,000, has been passed.

**Philadelphia, Pa.**—The Southampton fire company has placed order for automobile chemical outfit to carry ten men and equipment. Machine will be paid for by popular subscriptions, nearly \$1,100 having been placed already, with about \$900 paid in.

**Waynesboro, Pa.**—Borough Council is planning to motorize Fire Department.

**Barrington, R. I.**—At financial town meeting at Barrington on Nov. 3 appropriation of \$5,000 will be asked to purchase, house, equip, run and maintain an auto chemical fire truck.

**Corsicana, Tex.**—Fire Department has received shipment of 1,000 ft. of new hose. Another 1,000 ft. will arrive in few days. This will give department 10,000 ft. of good and serviceable hose.

**El Campo, Tex.**—City Council is planning to replace present steam whistle alarm with electric siren alarm.

**Alexandria, Va.**—City Council is contemplating purchase of motor combination chemical and hose wagon, to cost about \$8,000.

**Keyser, W. Va.**—Proposition to issue 5½ per cent. annual fire truck bonds to amount of \$8,000 will be submitted to voters on Nov. 2.

**Waukesha, Wis.**—Erection of new fire house and installation of fire alarm system have been recommended.

#### CONTRACTS AWARDED.

**Wilmington, Del.**—Contract to furnish 450 feet of cable for use in police and fire alarm reporting system, has been awarded to Standard Underground Cable Co. of Philadelphia, by Police Commissioners.

**Jacksonville, Fla.**—To the Towers Hardware Co., for 1,000 ft. of 2½-in. hose, at \$1.10 per foot, and to Georgia Supply Co., for 1,000 ft. 3-in. hose, at \$1.30 per foot.

**Sleepy Eye, Minn.**—For 500 ft. of hose, to Gutta Percha & Rubber Mfg. Co., New York City.

**Red Lodge, Mont.**—To American-La France Fire Engine Co., Elmira, N. Y., contract for combination wagon.

**Portland, Ore.**—Contract for furnishing fire bureau with 2,000 ft. of 2½-in. fire hose for \$1.10 a foot and 300 ft. of 1½-in. fire hose for 67 cts. a foot was awarded Oct. 21 by council to A. G. Long. A contract for furnishing 1,000 ft. of hose for sewer work was awarded to Boston Belting Co. for 49½ cts. a foot.

**Bellaire, W. Va.**—Bellaire is now assured of complete new fire fighting equipment, as contracts were awarded Oct. 20 by board of control. The Highland Automobile Co. of Pittsburgh submitted a bid of \$2,500 for Peerless truck, and this was accepted by board. The board also awarded the Seagraves Co. of Columbus the contract for furnishing one triple combination auto truck at their price of \$9,000, and one combination truck at \$5,000.

#### BRIDGES

**Cardiff, Cal.**—Plans are being completed by J. Butler, county surveyor, for reinforced concrete bridge to be erected on State Highway near Cardiff, to cost about \$10,000.

**Jacksonville, Fla.**—War Department has ordered city to erect East Bay St. bridge, 24 ft. in the clear, across Hogan's Creek and 6½ ft. clear height at mean low tide.

**Harrison, Ida.**—A. L. Jaqueth, Great Falls, Mont., has been retained by city to estimate cost of concrete structure across Coeur d'Alene River to replace wooden trestle.

**Waterloo, Ia.**—The extending of Beech St. by erecting viaduct at C. G. W. crossing and construction of crossing on Lincoln St. are plans under consideration.

**Marquette, Mich.**—Department of Public Works is about to contract for filling of wooden bridge 238 ft. long on Lake St. Fill will approximate 6,000 yds. M. H. Wright is engineer and superintendent.